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ABSTRACT

Within the realm of outdoor education, there are as many definitions of what it is or what it isn't as there are books. One definition is that outdoor education is teaching outside the classroom. It combines with and blends as part of the total curriculum. This handbook is designed as a manual to help train and support staff related to outdoor education programs. Although it is specifically oriented toward resident outdoor education programs, most of the material has been generalized and can easily be used by a school or resident center in developing an approach to outdoor education. The handbook includes: (1) discussions of sensory awareness, discovery learning, group dynamics and leadership, and the three-legged stool of group function styles of leadership; (2) lesson units for teaching creative arts, language arts, natural science, math, physical education and recreation, and social science; and (3) samples of forms, lists, and evaluations, i.e., letter to parents, equipment list, health form, permission slip form, a daily program schedule, camp rules and regulations, dining room procedure (family style feeding), school menu list, activity sign-up sheets, student instructors' responsibilities and camp contract, and parent on-site evaluation. A 20-item bibliography on theories and practices of outdoor education is included. (NQ)

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A MANUAL OF OUTDOOR EDUCATION

by

Rex A. Miller
Executive Director

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Camp Speers-Eljabar YMCA
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[1974]

RC039485

ABOUT THE HANDBOOK

This handbook was developed to be used as a tool for the Camp Speers-Eljabar Outdoor Education Center in working with schools as they plan resident outdoor education experiences. In order to be adaptable to any resident setting most of the material has been generalized and can easily be used by a school or resident center in developing an approach to outdoor education.

ABOUT THE AUTHOR

Rex A. Miller is currently the Executive Director of the Camp Speers-Eljabar YMCA. Over the last fifteen years, with ten of those as a YMCA professional, he has been actively involved in camping and the outdoor field. He has spent the last six years working with a large number of school districts throughout Michigan, New York and New Jersey, in developing resident outdoor education programs. His educational training includes a B.A. in Child Psychology from the University of Minnesota and a M.A. in Educational Psychology - Child and Adolescent Development from Michigan State University. Appropriately his greatest concern in outdoor education is about self-concept of the child as well as the affective and socialization elements seen so often in resident outdoor education settings.

A BASIC MANUAL OF RESIDENT OUTDOOR EDUCATION

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FOREWARD

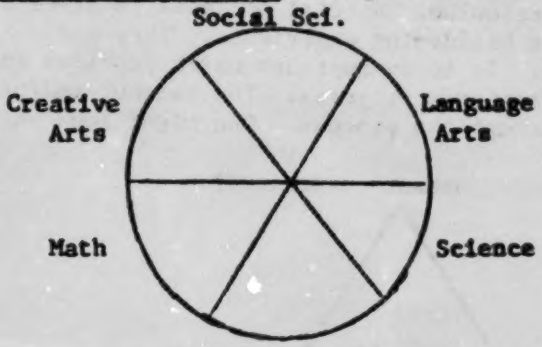
This handbook is basically designed as a manual to help train and support staff related to outdoor education programs. While its aim is specifically oriented towards resident outdoor education programs, most of the material is applicable to outdoor education in general, and hopefully can be used by teachers and administrators in design of an overall philosophy of outdoor education.

Within the realm of outdoor education, there are as many definitions of what it is or what it isn't (outdoor education) as there are books. The concept that I see as most productive is the idea that outdoor is teaching outside the classroom. It combines with and blends as a part of the total curriculum: whether it be in social science, math, natural science, physical education and recreation, language arts, or creative arts. Dr. Donald Hammerman of Northern Illinois University expresses it well when he mentions that all textbooks are related to experiences outside the classroom and that if one fails to take advantage of these experiences, then a part of the whole educational process is denied.

WHAT IS OUTDOOR EDUCATION?

As mentioned in the foreward, this manual will look at outdoor education as teaching outside of the classroom. The probable environments for teaching that one has available are the classrooms, the school, the community, and the field experience (field trip or resident outdoor education). All of the environments beyond the classroom and its four walls and desk represent a possible area for outdoor education.

A second concept that has to be kept in mind is that outdoor education is an extension of the total curriculum, not just Science or Physical Education.



A good example of this might be a visit to a cemetery. Here one might study lineages (Social Studies), make gravestone rubbings (Creative Arts), study epitaphs (Language Arts), analyze stone materials (Natural Science), and record data on life spans (Math). Of course, one can even start closer to the classroom. What about an elementary class group studying the various areas of the school and their significance to the whole operation? (Or even the various job roles - quite common study in 2nd or 3rd grade).

The special environment that this manual will attempt to deal with is the resident outdoor education experience. It is the type of outdoor education program that usually is done between the fourth through eighth grade levels. Within the philosophy of outdoor education, it falls somewhere mid-way in terms of possible approaches. A sample continuum might look like this:

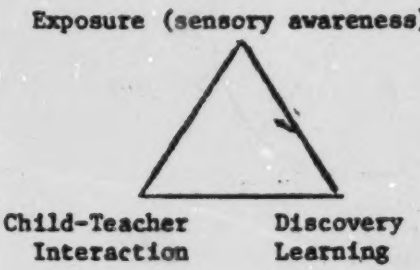
K 1	2 3 4	5 6 7 8	9 10 11 12
Outside Activity	Field Trips & Community Visits	Resident Outdoor Education	Intensive Resident Outdoor Education or Adventure Education

The resident outdoor education concept represents a concentrated living-learning experience which normally involves a total classroom or number of classrooms.

The most common approach is to include all students in a particular grade and depending on the school size, usually combines two or more classes. If facilities are available, the total school district at a grade level, i.e. 5th graders, may embark on the experience.

A second continuum that enters into outdoor education is the one which takes a look at the approach a school might take. At one end there is the approach that the school rents the site, does all the work (perhaps even the cooking) and totally staffs the program. At the other end, one finds programs which are totally set up and the children get "plugged" into them. More and more, though, there tends to be an equal sharing of resources from the school and the camp management (a team approach), in terms of training, staffing and support systems. My own bias is within this realm, since it normally produces a more successful and continuing program.

This manual approaches outdoor education as a process which helps to broaden and deepen the school curriculum. Special emphasis is given on several techniques which provide for this broadening experience. They are sensory awareness and discovery learning. It is an approach which provides guided programming along with material-centered projects. The teacher and/or counselors supplement and help the child through the process. One might look at it this way:



Given this, one begins to take a look at planning and developing the steps necessary to achieve a successful program. Planning needs to include decisions concerning when, where, what, how, and for whom. It also has to answer the question why. Some of the "whys" include:

- Broadening the curriculum base
- Socialization
- and recent research is starting to indicate
  Self-concept awareness
  and
  Attitude change toward learning are occurring

It is, then, with the above concepts and philosophy that this manual has been developed. Hopefully, it will be of help to anyone developing an outdoor education program, especially at the resident outdoor education level.

SENSORY AWARENESS

Sensory awareness refers to the basic concept of total use of the senses in becoming aware of your surrounding environment, in order that more significant learning can take place. Much of what we learn in the classroom relies on our use of sight, in terms of reading and other forms of visual stimuli. Followed closely in second is our use of hearing. The other senses of touch, taste and smell are used to limited degrees, such as in a chemistry or biology lab. In addition, we tend to use them in a formalized setting in which very specific objectives are set forth for learning. Sensory awareness does not approach use of the senses in a formalized way, but rather in an informal setting. By use of the senses, we become aware of what is around us, which helps to stimulate the person to want to learn more about the environment.

It is rather like "total submersion" into the environment. Then with minimal outlines, one can begin to search out the facts of a project (see discussion of self-discovery techniques).

One agency that has changed much of their philosophy from a formalized to an informal sensory awareness approach is the National Park Service. Most of us remember the long, drawn-out, formal lecture approach that the NPS has used in their "tours". One would be put into a group and proceed to follow a guide around and listen to him on a variety of subjects; usually related to very specific historical or natural objects. But, this is and has changed. One only has to visit the Museum of Immigration at the Statue of Liberty and he is overwhelmed by a visual and sound presentation. The use of color, music, fast moving slide shows, and highly decorative displays are in evidence everywhere. In order to off-set and keep the level of distraction down, the surrounding walls and floor are muted and carpeted. If the interest of the person is stimulated beyond this point, there are more than adequate written descriptions along with each display. These descriptions, plus a number of materials available at the "gift shop" allow one to continue the learning process. Along with these types of displays, the National Park Service, in cooperation with the National Environmental Study areas using awareness techniques. The new image thusly is quickly replacing the old image.

How then does one go about exploring the environment through sensory awareness? The easiest way is to first submerge the person into the outdoors. Have him or her describe what he sees, feels, hears, touches, tastes and smells. A discussion of how persons feel about certain types of weather might be appropriate at this point. Other activities such as descriptions of trees, birds and animals, surroundings, etc., can be approached very easily. For instance, "How does that tree feel? Is its bark smooth or rough? What does the bark and leaves taste like? What do the leaves look like? Is there a particular smell to parts of the tree? How does the tree look? If you were that tree, would you be sad, happy, strong, stately, sleepy, etc.?" NOTE: Many questions have been asked, but no one has asked what kind of tree it is. Later, motivated by the vast amount of stimuli, one ends up by identifying the tree. Other techniques, such as role-playing a tree or frog, or a blindfold walk can be used very easily.

To summarize, one then might describe the process of sensory awareness as submersion into the environment, description through use of senses, and finally, identification. By this process, one becomes totally involved and learning becomes easier and more effective. (For a variety of exercises and description of sensory awareness, two excellent books by Steve Van Matro are "Acclimitization" and "Acclimitizing".)

DISCOVERY LEARNING

Discovery learning, self-discovery, or exploratory learning is one of the most widely used and easiest approaches to the concept of teaching in the out-of-doors, or even in the indoors, for that matter. It has a close bond to programmed instruction as well as material-based teaching. It is in the truest sense a form of problem solving through the use of observation.

What do we mean, then, by discovery learning? The elements of this form of teaching are:

1. A specific goal in mind.
2. Steps leading to that goal.
3. A guided program based on those steps.
4. Assistance, as needed, in following the program.

An example of this might be a study of an early pre-1850 homestead. By guiding one through the elements of construction (foundation, fireplace, siding, beams, mortar, etc.) the student begins to form a composite picture of what type of house it is, as well as some insight into the necessary work that it took to construct the house and thus an idea of what early pioneer life was like. Science often makes use of discovery learning when a student uses description in defining an unknown object in the field (shape, size, color, texture, etc.) and later is able to identify it in a key. In other words, not only does observation take a very important part, but also that most important element known as involvement is present. And although it can not be an automatic assumption, an increased level of motivation within the student probably occurs.

A good description of just what discovery learning is all about was published in a copy of the Communicator, the New York State Outdoor Education Association journal, and it goes:

I hear and I forget
I see and I remember
I do and I understand

It is, then, this open-ended investigation leading to problem solving that seems to have the greatest success and satisfaction in terms of teaching in the outdoors both from an effective teaching approach and an effective learning process for the student.

SAMPLE LETTER TO PARENTS

Dear Parents:

We are writing this letter to let you know about the resident outdoor education program that is being planned for the ____ grade class during the week of _____. You may have already heard of the program and now we are writing to tell you more about the content and philosophy of the program.

Outdoor education is basically an extension and enrichment of the regular school curriculum outside of the classroom. A resident program consists of a living - learning experience for the children and teacher. The children study the same subjects as they do in school: outdoor math, language, creative arts, social science, natural science, and physical education. The difference is that by actual experiencing many of the above subjects helps the student learn more effectively. A good example of this might be with children studying a unit on job vocations and then taking a trip to the firehouse, police station, or village hall to see the actual jobs in action.

Another advantage of a resident program is that it gives children a chance to have greater socialization with other classmates and their teachers. This can be very important as your child continues to grow and learns to be a responsible citizen in todays world. It also helps the teacher to more effectively understand and work with your child.

We would hope that you give serious consideration to allowing your child to participate in the program. Any questions that you might have can be answered at the parents information meeting on _____ or please feel free to call Mr./Mrs. _____at _____.

Yours truly,

EQUIPMENT LIST

BEDDING:

1 sleeping Bag OR 2 warm Blankets
1 or 2 Sheets
1 Pillow and cover

CLOTHING:

2 - 4 changes of Underwear
3 - 4 pairs of Socks
2 pairs Trousers, Slacks, or Dungarees
2 pairs of Shoes. Boots are also good
1 warm Jacket
1 Hat or Cap
1 pair Boots or Rubbers
3 - 4 Shirts or Blouses
1 pair of Pajamas
1 Sweater or Sweatshirt
1 Raincoat
1 Plastic Bag for soiled clothing

TOILET ARTICLES (NECESSARY)

1 Comb
1 Toothbrush
1 Tube Toothpaste
Soap and container
1 Washcloth
2 Towels

OTHER ARTICLES:

Notebook and Paper
Pen and Pencils
Camera and Film
Field Glasses
Flashlight
Fishing Tackle
Small Mirror

NOT NEEDED: FOOD, GUM, CANDY, KNIVES, OR RADIOS OF ANY KIND.
NO ARCHERY EQUIPMENT OR B-B guns.

PLEASE LABEL OR MARK ALL ARTICLES

SAMPLE HEALTH FORM

CAMPER'S NAME _____ BIRTH DATE _____

NAME OF HEAD OF HOUSEHOLD _____

ADDRESS _____ CITY _____

HOME PHONE _____ PARENT(S) BUSINESS PHONE _____

In case of emergency the family can be reached at home, except during the hours between _____ and _____, at which time the family can be called using the business phone above, or by calling _____.

I understand that arrangements are going to be made with the _____ Hospital to care for my child, if such care is needed. I give my full permission for the child to be taken there in case of emergency.

_____
Signature of Parent or Guardian

CAMPER'S HEALTH HISTORY

Has your child ever had:

Hernia (rupture)	_____	When?	_____
Appendicitis	_____	When?	_____
Kidney Trouble	_____	When?	_____
Rheumatic Fever	_____	When?	_____
Heart Disease	_____	When?	_____
Tonsilitis	_____	When?	_____
Bone or Joint Trouble	_____	When?	_____

Is your child subject to: (If yes, poease specify)

Ear, nose, and throat problems	_____		
Fainting Spells	_____	Cause	_____
Poison Ivy, Oak, or Sumac	_____		
Frequent Headaches	_____	Cause	_____
Convulsions or Seizures	_____	Cause	_____
Asthma Attacks	_____		
Bed Wetting	_____		

Have you any special health suggestions? _____

My child is allergic to _____

My child last received a Tetanus shot on _____
If your child will be taking any prescribed medication at camp, please note:

_____

I hereby give permission for my child to be given Aspirin as deemed appropriate by school Personnel.

_____
Signature of Parent or Guardian

PERMISSION SLIP FORM

I DO GIVE MY CHILD _____
DO NOT (Pupil's Name)

in _____ class, my permission to
(Teacher's Name)

participate in the _____ RESIDENT OUTDOOR
(School)

EDUCATION PROGRAM from _____ through _____ 197_

LAKE PRIVILEGES --- (APPROVED) (DISAPPROVED)

HORSEBACK RIDING LESSONS --- (APPROVED) (DISAPPROVED)

(Signed) _____

Date _____

School _____

SAMPLE DAILY PROGRAM SCHEDULE

7:00 A.M.	RISE and SHINE - CABIN CLEANUP
7:40	TABLE HOPPERS TO KITCHEN
7:55	FLAG RAISING
8:00	BREAKFAST
9:00-10:45	FIRST CLASS PERIOD
10:45-12:00	SECOND CLASS PERIOD
12:15 P.M.	TABLE HOPPERS REPORT
12:30	LUNCH
1:30-2:45	THIRD CLASS PERIOD
2:45-4:00	FOURTH CLASS PERIOD
4:00-5:45	FREE TIME - ACTIVITIES
6:00	DINNER
7:00	EVENING ACTIVITY PERIOD
8:00	ALL CAMP PROGRAM
9:30	LIGHTS OUT

CAMP RULES and REGULATIONS

1. Campers will remain within the boundaries of camp.
2. Boys and girls will remain within their own area unless accompanied by a counselor or teacher.
3. Campers will make their own beds and help keep their cabins clean and neat. There will be a daily inspection.
4. Campers should brush their teeth after breakfast and before going to bed.
5. Campers should wash their hands and face and comb their hair before each meal.
6. Campers should shower every other day while at camp.
7. Campers will keep their clothes in order and dress for the weather so they are warm and dry.
8. Illness should be reported to a teacher immediately.
9. Campers are not to mark or destroy property.
10. All campers should be on time for all activities.
11. Shoes are to be worn at all times.
12. "Lights Out" means quiet in the cabins. Campers should remain in bed until the "wake-up" signal is given.

DINING ROOM PROCEDURE
(family style feeding)

1. All hosts and hostesses report to dining hall 15-20 minutes before meals.

2. Responsibilities include setting of tables, act as hopper for food for his or her table, removing food and dishes from table, wiping clean the table, and sweeping up his area.

3. Before meals tables must be wiped off, proper setting of dishes (according to model setting), and basic food such as bread, butter put on table.

4. Hoppers line up at kitchen dispersing area (window or door) with food trays. Note- if student is quite small, he or she may need help in carrying food.

5. Students should enter dining hall and stand quietly behind their chair or bench.

6. Hoppers pick up food and bring it back to their assigned table.

7. Either a grace, singing grace, or moment of silence is appropriate at this point.

8. Students sit down and food is served under student instructors of teachers guidance.

9. Any running for more food, etc. should be done by the hopper.

10. Dessert is usually held until general group is finished with main dishes.

11. Cleanup is done under general supervisor of dining room personnel. Typical procedure is to return good food to serving area, separate garbage and paper, stack dishes on tray, take dishtrays to appropriate area, and clean off table tops.

12. Cleanup may be done before students are excused or after. If done before, this time is often used as a time for announcements, clearances, mailtime, song sessions, etc.

13. Students are excused.

14. Hoppers sweep and pick up around their table area and then proceed to next activity.

SAMPLE SCHOOL MENU LIST

BREAKFAST

French Toast, Syrup
Pancakes, Syrup
Eggs-Scrambled, Hash Browns, Toast & Jelly
Hot Cereal, Toast & Jelly
Cold Cereal, Coffee Cake

All Breakfasts include juice or fruit, milk cocoa.

LUNCH

Chili, crackers, relishes (carrots, celery)
Soup- Sandwiches (Cold Cuts)
Hot Dogs - Baked Beans
Sloppy Joe's, Potato Chips
Fish Sandwich, Potato Salad
Hamburgers, Potato Chips
Grilled Cheese Sandwiches, Potato Chips

Lunches include dessert and beverage.

DINNER

Ham - Scalloped Potatoes
Roast Beef - Potatoes, gravy
Roast Pork - Potatoes, gravy
Spaghetti, Tossed Salad, fresh bread
Macaroni & Cheese, Salad
Chicken - Potatoes, gravy
Fish Sticks, French Fries
Beef Stew
Chow Mein, Noodles, Rice
Noodle Casserole (Tuna, Chicken, etc.)-
Cottage Cheese

Dinners include vegetable, dessert, and milk.

ACTIVITY SIGNUP SHEETS

Depending on the process that is used by the participating school system, students may sign up for either all their study activities and free time activities or perhaps only their free time activities. In the second case there are usually specified subject units that all students participate in. Either system needs to develop an approach to scheduling students into the activities. A typical assignment/signup sheet might look like this;

Subject: _____

Day: _____ Time: _____

Students Name	Team No.
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	

These sheets are compiled before the school group is scheduled to come to the outdoor education center. A good project for the classes to take on is to develop a posting system that is put up at camp so each student can check where he or she is supposed to be at a particular time (even though they usually are given this information beforehand.) One precaution should be noted in reference to limiting the number of assigned students or signups in any one activity. Small group activities lend themselves best to a group of ten to fifteen.

STORE SALES

Often, the resident facility that is used by a school outdoor education group has some sort of a trading post or camp store. If it is used by the school group there needs to be a system established for children to buy items without carrying money on them.

Several approaches are noted below:

I. Writing a camp check. Money is deposited with the school or teaching staff beforehand. Checks are drawn off this account. This can be a very good learning experience.

Check No. _____	Check No.___ ___ 19__
Date_____	
Payable to_____	Payable to the order of _____
_____	
For_____	_____
Old Balance_____	
This Check_____	_____
New Balance_____	

II. Using a bank card. Same procedure for depositing money.

Name _____ Team_____

ITEM	BALANCE

Points to watch:
- -Check or bank card must be completely filled out each time.
- -Balance sheet must show a balance at all times.
- -If a student does not have his bank card or check no purchase should be allowed.
- -Limits should be placed on items such as candy, soda pop, etc.

A WORD ABOUT LEADERSHIP

In the next few pages you will find a number of references to a variety of leadership terms. In order to more easily relate to these terms and give a firmer grasp of leadership potential the following should be identified:

STUDENT INSTRUCTOR - This is a high school student (11-12 grade), normally from the same school district, who works with groups under the close supervision of a teacher. Because of the self-directive approach in outdoor education, this type of leadership is easily used. A teacher then can work with a number of student instructors thus spreading his or her supervision over a larger number of students. The strongest argument that can be used in favor of this type of structure is that the community school is using their own natural resources - in terms of person power. In other words - leadership development in action.

INTERN OR EXTERN - This is a college age student on a field work experience project and assigned to the specific resident unit. They usually serve for a 10 to 12 week internship and are under close supervision by the Director of the operation. Credit is normally obtained from the sponsoring school, as well as receiving a modest stiepend from the operation. A great resource and a functional way of developing a working team.

RESOURCE PERSON - Usually refers to a community of school resource who comes on site for a limited time to provide specific expertise in an area of study. Examples include conservation officers, 4-H staff, teachers, etc.

STUDENT INSTRUCTORS' RESPONSIBILITIES

1. Each Student Instructor is responsible for the students in his cabin during the following times:

   From reveille to breakfast, including clean up.
   Horizontal Time (rest period)
   After evening activities, including preparation for bed and lights out.

2. SI's should be generally aware of where their students are during meals, recreational activities, free time, evening activities, and other scheduled activities.

3. The SI's in charge of each activity will be responsible for the students in his group. If for some reason the activity should end early, the S.I. is still responsible until the next activity begins.

4. After lights out, SI's should make sure that students remain in cabins, and that students only be allowed to leave in cases of emergency or night watch.

5. Have all students report all injuries and illness to your teacher/supervisor.

6. If you smoke, this should be done only in the designated area.

7. No alcoholic beverages or drugs are allowed.

8. If you plan to leave campgrounds (except for a scheduled activity), notify your teacher/supervisor.

9. Students should never be left unsupervised, in cabins or activities.

10. Your participation and cooperation is greatly appreciated.

11. If someone is injured or becomes ill during an activity, send a student to the teacher-supervisor for additional help.

12. If a discipline problem occurs, send a student to teacher/supervisor for additional help.

13. Only the Program Director, or his designee, may cancel classes.

STUDENT INSTRUCTOR

CAMP CONTRACT

I, _____, agree to understand, and accept the following responsibilities for Team camp:

I. I will support in every possible way our camp objectives:

- to understand and appreciate the out-of-doors through living in an outdoor setting, observing and learning about man's effect upon the natural world and the effect of the natural world upon man, and by using the out-of-doors for learning

- to learn to work and live together cooperatively as a group

- to make new friends

- to encourage dialogue between students, and students and teachers

II. I will cooperate willingly and promptly in all camp activities

III. I will be responsible for my own behavior which includes:

1. Being on time, properly dressed and equipped for participation in all camp activities

2. Staying with my assigned group at all times

3. Following all schedules, rules and regulations

4. Making sure that everyone, student or adult, is accepted and included in all camp activities

5. Doing all assigned chores, as well as extra requests, promptly and willingly

6. Reporting all injuries, illnesses, and accidents promptly to the camp staff, no matter how small they may seem.

7. Making meals a highlight of the day by using appropriate dining hall etiquette

8. Not going near cabins occupied by the opposite sex unless in connection with a scheduled activity

9. Doing my best to make camp the best ever

I understand and acknowledge that it is my responsibility to know the full meaning of these terms and that any failure on my part to comply with the terms of this contract will result in appropriate action by the camp staff (which could include being sent home from camp).

In payment for full cooperation, Team will have the best school camp ever and our team will make this year 'the best ever'!

_____
(Signature) HR Date

Witnesses:

_____ _____
(Signature) (HR) (Date)

STUDENT EVALUATION FORM

(Please be as honest as you can with this evaluation. It is not used to grade anyone but to help us plan an even better program in the future.)

What study unit( ) did you enjoy the most _____

_____

the least _____

Please check the following items:

	Excellent	Good	Average	Fair	Poor
CLASSES					
HOUSING					
FOOD					
FREE TIME ACTIVITIES					
EVENING PROGRAMS					

Putting all the teachers togetner, how were they as a group? _____

_____

How were your student instructors? _____

_____

What did you like best about your outdoor education experience? _____

_____

What did you like the least? _____

_____

Name _____ Team _____

SUGGESTED PARENT EVALUATION (ON SITE)

These questions are designed to assist you in evaluating the Outdoor Education program based upon your observations.

The questions have intentionally been structured to be broad in scope.

It is anticipated that you will frame your specific responses about the program around these questions and add at the end any additional comments you wish to make.

When you record your comments (on the provided tape recorder) to the questions, kindly state your name and the number of the question to which you are responding.

1. What specific evidence did you notice that indicated the students understood what they were doing?

2. From your observations, what evidence is there that the relationship between student and teacher has improved?

3. Can you mention at least two events you observed that would indicate the students know/or understand a new classmate better?

4. What evidence did you observe that would indicate the outdoor education program was designed with the student's learning in mind?

5. From your observation here and at school would you discuss the issue of your child being adequately prepared for this program?

6. From your observation what activity areas need improvement and what are your specific suggestions?

7. Having observed the camp site and its facilities, what additional activities could be included in our program?

8. What are your overall impressions of the

    a. Site
    b. Staff
    c. Student Instructors
    d. Administrator and Coordinator
    e. Specific field activities
    f. Free time activities

Thanks for your help,

(A special thanks should be given for the use of this evaluation form to Nickolas Cerullo and Lee Houk of the Pelham Public Schools, Pelham, N.Y.)

GROUP DYNAMICS AND LEADERSHIP

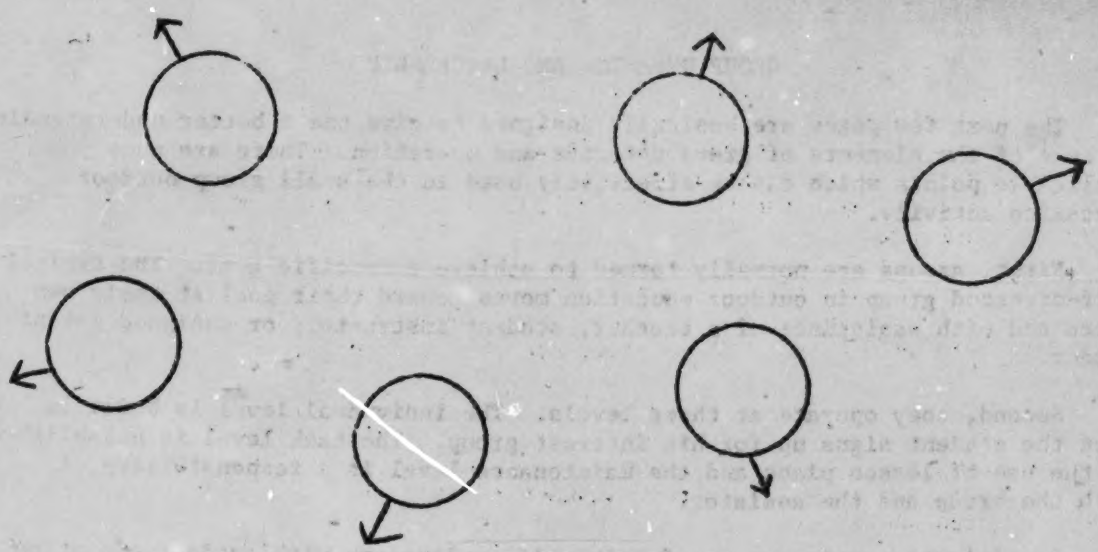
The next few pages are basically designed to give one a better understanding of some of the elements of group dynamics and operation. There are many applicable points which can be effectively used in the small group outdoor education activity.

First, groups are normally formed to achieve a specific goal. The typical self-directed group in outdoor education moves toward their goal at their own speed and with assistance of a teacher, student instructor, or assigned parent leader.

Second, they operate at three levels. The individual level is built in when the student signs up for his interest group. The task level is established by the use of lesson plans and the maintenance level is a responsibility of both the group and the assistor.

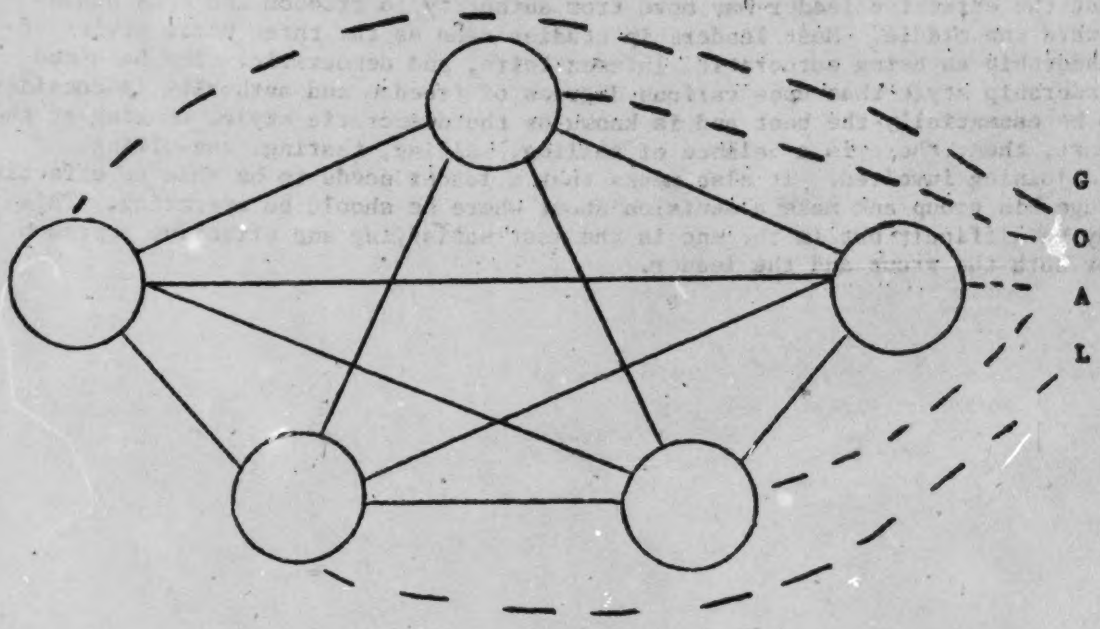
Participation patterns are fairly self-explanatory with outdoor education having a strong impetus in the multi-directional area. The same concept exists in the material-centered philosophy which states that the materials being used are at the center with both the teacher and the child interacting to make the best use of them. It gets away from the one-directional approach.

Within the area of leadership one can look at the chart and quickly see that the effective leader may move from authority to freedom and back again toward the middle. Most leadership studies name as the three basic styles of leadership as being autocratic, laissez faire, and democratic. The balanced leadership style that uses various degrees of freedom and authority is considered to be essentially the best and is known as the democratic style. Looking at the chart, then, there is a balance of telling, selling, testing, consulting, and joining involved. It also means that a leader needs to be able to effectively gauge his group and make a decision about where he should be operating. This may be difficult but in the end is the most satisfying and effective approach for both the group and the leader.



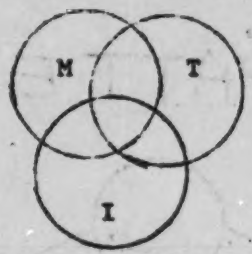
A COLLECTION OF

INDIVIDUALS



A GROUP

THE THREE LEGGED STOOL OF GROUP FUNCTION



Group Functions - Every group operates on three levels, although our usual experience and frame of reference makes us aware of only one of these. These levels are:

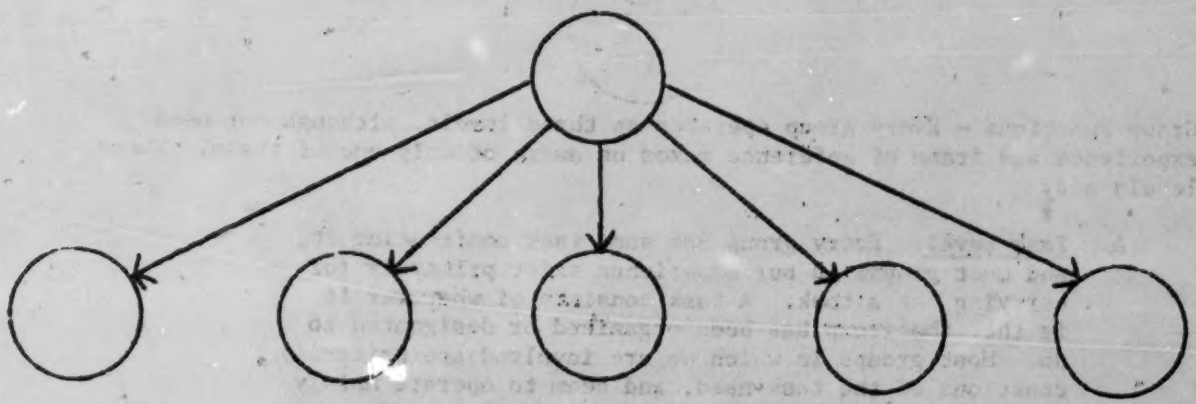
A. Task Level: Every group has some task confronting it, and most groups in our experience exist primarily for carrying out a task. A task consists of whatever it is that the group has been organized or designated to do. Most groups in which we are involved are primarily conscious of the task need, and seem to operate mainly on this level.

B. Maintenance Level: A group consists of a constantly changing net-work of interactions and relationships between persons. A group, therefore, has a growing awareness of itself as a group, and it is faced with the need to maintain the interactions and relationships within it in some genuine "working order" if the task is to be accomplished. This is the morale factor in groups.

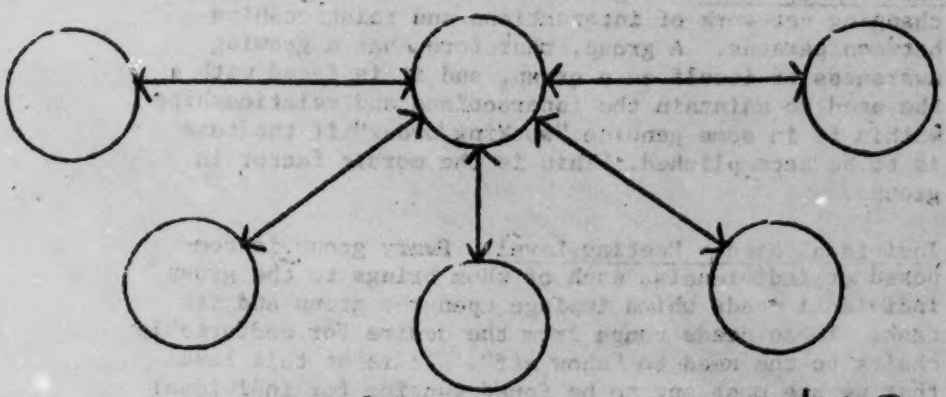
C. Individual Need - Meeting Level: Every group is composed of individuals, each of whom brings to the group individual needs which impinge upon the group and its task. These needs range from the desire for comfortable chairs to the need to "show off". It is at this level that we are most apt to be found wanting for individual needs are frequently screened behind the task drive of the group and/or well developed behavior patterns. Many a group has floundered because the individual needs have remained beneath the furfact.

As group operates in balance on these three levels, it shows itself to be an efficient and mature group. As one or more of these levels is neglected, so its efficiency is impaired and its growth thwarted.

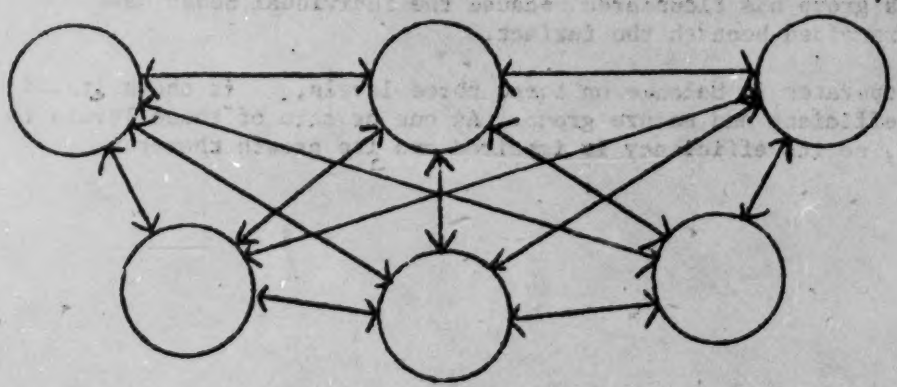
PARTICIPATION PATTERNS



ONE WAY : LEADER TALKS



TWO WAY: LEADER SPEAKS & MEMBERS RESPOND



MULTI DIRECTIONAL

STYLES OF LEADERSHIP

The three basic styles of leadership are:

1) The autocratic leader - This type of leader could also be called the dictatorial or militaristic leader. He rules by force and strict control.

2) The laissez-faire leader - This leader is the exact opposite of the autocratic leader. He exerts no control over the group with the mistaken feeling that the group will like him better.

3) The democratic leader - Although this style of leader is often portrayed as existing somewhere halfway between the other two styles of leader, this is not exactly true. Instead, this leader is a culmination of the two other styles, using control when necessary and yet allowing the group total freedom when the situation calls for it. He maintains an even balance between the two styles and lets the group make the necessary decisions for effective attainment of goals as well as giving the necessary support and advice to help them attain that goal.

Characteristics of the three styles of leadership:

1) Autocratic -

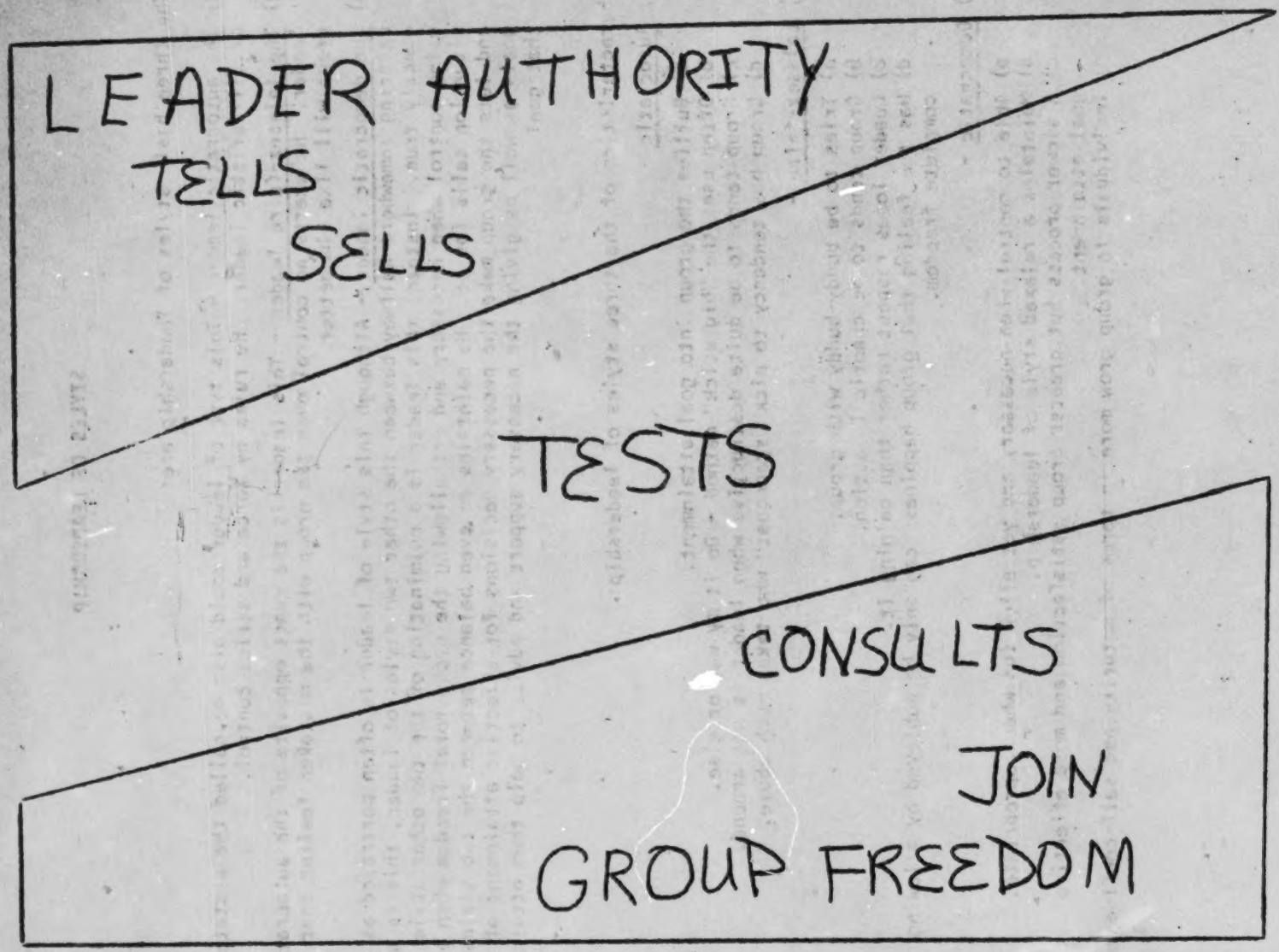
   a) Bullies the group into goal attainment.
   b) Often uses the "big stick" method - Do it my way or else.
   c) Group tends to be quite destructive when leader is not around.
   d) Group has tendency to pick "scapegoat" who takes much abuse.

2) Laissez-faire -

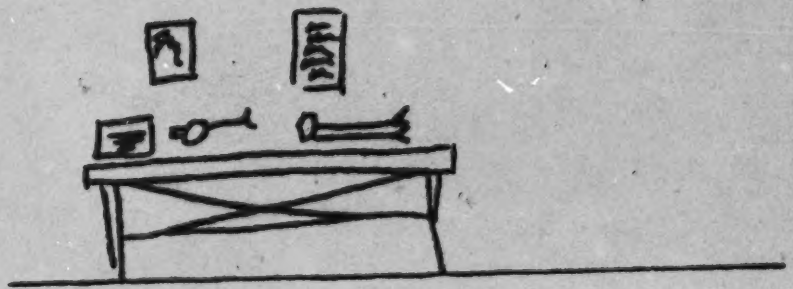
   a) Tries to be buddy-buddy with group.
   b) Group tends to be chaotic in action.
   c) Leader loses respect rather than gaining it.
   d) Has the feeling that group happiness can only be achieved by allowing complete freedom.

3) Democratic -

   a) Able to control when necessary and yet allow fun when appropriate.
   b) Maintains a relaxed style of leadership.
   c) A slower process but greater group satisfaction and more effective goal attainment.
   d) Individuals in group grow more in terms of maturity and self-confidence.


LEADER AUTHORITY
TELLS
SELLS
TESTS
CONSULTS
JOIN
GROUP FREEDOM

CREATIVE ARTS



AMERICAN FOLK MUSIC

Objectives:

1. Involve students in listening to and singing music using informal techniques.
2. Tracing the history of the U.S. through folk music.

Basic materials:

1. Recordings of material from each unit.
2. A basic familiarity with music, song leading.
3. OR- and the best - access to one who can present the lesson plan using instruments, etc.

I. Introduction - Importance of folk music in the life of people (work, play, relaxation, entertainment, messages, and causes).

II. Songs of Tradition - Ballads and Breakdowns
Examples: Barbara Allen, The Cuckoo, Leather Britches, Farmers Curst Wife, Lord Randall

III. Songs of Fun and Play
Examples: What'll We Do With The Baby-O, Skip To My Lou, Jennie Jenkins, Cindy, Cripple Creek

IV. Songs of Work
Example: Alouette, Go Down Old Hannah, Pick A Bale Of Cotton, Didn't Old John, Michael, Row The Boat Ashore.

V. Songs of the Sea
Examples: Haul Away Joe, Ruben Ranzo, Shenandoah, Rio Grande, What'll We Do With a Drunken Sailor?

VI. Songs of the Westward Movement - Pioneers, Cowboys, Wagoneers, Railroaders
Examples: Old Smokey, Erie Canal, John Henry, Casey Jones, Streets of Laredo, Old Chisolm Trail, Old Paint, Nine Hundred Miles, Wagoneer's Lad, Sweet Betsy From Pike, State Of Arkansas, Young Man Who Wouldn't Hoe Corn.

VII. Songs of War
Examples: Yankee Doodle (American Revolution), John Brown's Body and Goober Peas (Civil War), Mademoiselle From Armentieres (World War I), Gee, But I Want To Go Home (World War II), If You Love Our Uncle Sam (Viet Nam).

VIII. Songs of Freedom
Examples: Oh Mary, Don't You Weep, Oh Freedom, Follow The Drinking Gourd, Wade In the Water, Go Down Moses, We Shall Overcome, Aint Gonna Let Nobody Turn Me Around.

IX. Songs of Children
Examples: Go Tell Aunt Rhody, All The Pretty Little Horses, Hush Little Baby, Leather Winged Bat, Frog Went A'Courting, Put Your Finger In the Air.

p. 31 blank

X. Songs of Religion
Examples: Amazing Grace, Wayfaring Stranger, Poor Little Jesus, Saints Go Marching In, Lonesome Valley.

XI. Songs of the Balladers - Woody Guthrie, Pete Seeger, Malvina Reynolds, Joe Hill, Bob Dylan
Examples: Pie In the Sky, This Land Is Your Land, Hard Traveling, 1913 Massacre, If I Had A Hammer, Turn, Turn, Turn, Little Boxes, Just A Little Rain, Blowing In The Wind, Times They Are A' Changing.

XII. Songs of Today - Modern folk.
Examples: If I Were A Carpenter, Leaving on a Jet Plane, I'd Like to Teach The World To Sing, I Believe In Music, One Tin Soldier, Sounds of Silence, Bridge Over Troubled Water, Today, City Of New Orleans, Me And Bobby McGee.

Closing note: The above list is only a suggested number of song possibilities. American folk music has such a rich and numerous selection that this is only scratching the surface.

CAMERA HIKE

Purpose: to gain practice in artistic and technical photographic methods in a natural setting.

Major considerations in taking a picture:

A. Technical:

focus: is the effect heightened by having the center of interest in exact focus and the background blurred?

Should the entire picture be in perfect focus?

Can you create a sense of motion by a slight blurring of the entire photo? by part of the photo?

Depth of field: know the range of an object from your lens which will be in focus for a particular lens opening (f-stop). When the lens is set for higher f-stops (when the amount of light going through the lens is less) the focus range will be greater than for the lower f-stop settings.

lighting: exposure controlled for effect
hand-held sheets of light cardboard can work as fill-in
floodlights when they are aimed so as to reflect the sun
there may be a tendency to <u>under</u>-expose dark objects being photographed in a very bright surrounding.

shutter speed: freeze action with high shutter speed settings, blur action with lower shutter speed. If your camera is of fixed shutter speed, you can freeze motion by panning the camera at the same speed as the object being photographed.

B. Esthetic or artistic:

composition: USE THE VIEWFINDER!
ratio of sky to landscape?
arrangement of objects so desired effect is obtained

texture: contrasting rough wood against smooth stone?
Indian corn against a pumpkin?

color: fall leaves against blue sky or dark moss
if using black and white, create a mood in tones of grey or strong black white contrast?

converging (coming together): railroad tracks at a distance?
diverging (going apart): sun rays filtering through fall trees?
parallel: old siding boards on a weathered barn?
concentric circles formed by a stone in a pond?
irregular: wavy lines in stones? ripple marks in water?

NATURE ARTS and CRAFTS

PINE CONES - Can be used for the making of ornaments, animal-like creatures, mobiles, dolls and collages. All one needs is cones, glue, paint, and miscellaneous bits and pieces.

CLAY PLAQUES - Collect clay, roll out, press leaf or other object on clay, remove; with popsickle stick etch design in clay.

SAND PAINTING - Sand should be clean; dye sand with all-purpose dye or tempera paints. Dry sand in sun. Draw picture you want to design, outline with Elmer's glue (one color area at a time). Sprinkle on colored sand. Shake off excess.

MUSHROOM SPORE PRINTING - Spread thin coat of 1/2 mucilage, 1/2 water mixture on cardboard. Cut stem off a mature open mushroom. Place cap on cardboard and leave for 24 hours. Let dry.

NATURE COLLAGES - Collect weeds, flowers, etc., on field trip. Design in vase, on cardboard, on wood, etc., Use tempera paint for adding colors, Elmer's glue to hold on plaque.

Alternative is to develop pattern collage on cardboard or heavy construction paper. Cover with tissue paper. Use bug sprayer filled with mixture of glycerine and water on plaque. Let dry.

LEAF PRINTING - Make a composition. Pour paint on magazine or in pan. Run brayer in paint. Apply to one side of leaf or weed (on newspaper). Place inked or paint side down on paper. Place another piece of paper on leaf. Go over with a clean brayer.

ACORN PEOPLE - Acorns can be made into a variety of pixies, animals, etc. The acorn caps are also useful for hats. Make on bases, as lapel pins, etc. One needs acorns, felt markers, tempera paint plus any additional items - cloth, leaves, pine needles, cotton, bark, seeds, feathers - as suits one's fancy.

SAND CAST CANDLES

If you are experienced, adapt these steps, as you wish.
BUT ALWAYS - - OBSERVE SAFETY RULES:

SUPERVISE. . . .
BE CAREFUL OF HEAT SOURCE and HOT WAX
KEEP HAIR OUT OF THE WAY.

MATERIALS:

Crayola crayon ends or candle color; old candles or wax or paraffin; shells or pebbles to insert in wax, if wanted.
Something to dig candle out of sand: stick, spoon, etc.
Heat source: charcoal, grill, or hot plate; wicks; matches; lighter fluid; smaller cans, coffee cans, or old pan; water.
Hot pads to remove smaller can of melted wax from coffee can.
Newspapers; shovel;
Thermometers (candy thermometer) - can be optional

PROCESS:

1. Prepare heat source. If grills, charcoal, lighter fluid, matches.
2. When heat source is ready, place coffee cans 1/8 full of water on grill.
3. CAUTION: Have water handy at side to douse on, in case of fire.
4. Insert smaller can half full of wax into boiling water.
5. Information on temperature of paraffin:
   (a) At 180° F on candy thermometer, add the crayon color (scents or glitter, if desired) to paraffin.
   (b) With papaffin at 210° F, a thin crust will result on the outside of the finished candle.
   (c) At 250° F, there will be a thick crust on outside of candle.
6. When the wax is at the maximum temperature you wish (just before pouring into mold), FOR COLOR, add and melt the colored crayons.
7. Size of the candle: It's best, if it's small, but it can be up to the size of a quart can (a lot of paraffin will be used that way though).
8. Dig hole in sand the shape of candle desired.
9. Put one end of wick in bottom of mold, sticking it into sand and attach other end to stick, being sure it's centered.

   Alternate method of placing wick: Tie wick to stick and dangle over hole with tiny stone on bottom of wick for weight, being sure it's centered.

10. Pour in wax. Let harden. Remove candle.

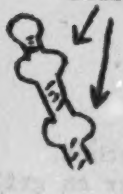
TIE - DYING

Purpose: To introduce students to a craft that traces its origins back to Indian and Pioneer skills.

Materials:
- Dyes - either Rit or one of the newer cold water dyes.
- Rubber bands
- Rubber gloves
- Several large pots
- Squeeze bottles
- Material to be dyed - t shirts, tank tops, etc.

Procedure: -Take t shirt or material and tie a variety of knots in it, using the rubberbands to hold them tight. Some examples of knots include the following:

Twist



Roll and Tie

Tie Continuous Knots

Fold garment and tie

-Add dye to bottles. If hot type - keep hot until ready to use.

-Add 3 to 4 drops to each knot. Work in well with fingers. Remember to use rubber gloves unless one likes tie-dyed fingers.

-Drop shirt in large pot of dye. Submerge and simmer for about 30 minutes.

-Rinse under cool running water till residue is clear. Untie. Re-rinse.

-Dry garment.

Note: Any number of kinds of knots, folds, and patterns can be developed. One only need use his or her imagination. In tie-dyeing there's just no such 'beast' as a mistake. Each pattern is unique in itself.

An alternative: Natural dyes from berries, etc. may also be used. Most crafts books give procedures on how to make these dyes. This procedure does, however, take considerably more time and patience since one must start from scratch.

WEAVING

One of the oldest skills is weaving. Forms of weaving were used in making cloth, mats, rugs, and baskets. Weaving of some type probably was in use as far back as primitive man. The American Indian and later the pioneers refined the skills down to a preciseness that rivals the modern techniques in terms of beauty and symmetry.

Purpose: To familiarize students with various methods of weaving using natural materials and several types of primitive looms.

Materials needed:
- -Natural materials need to be collected such as grasses, straw, reeds, rushes, cat-tails, willow branches, iris-like leaves, etc.
- -Heavy cord to be used in warp; nice to have several colors.
- -Wooden pegs (10 to 12 about 6" long.)
- -Wooden dowels (1/2') 2 1/2 to 3 feet in length.
- -Nails (3 to 4")

Procedures: Prepare materials such as grasses, reeds, cat-tails, etc. by drying for several days. This could be done earlier on a collection hike or providing the materials to the students.

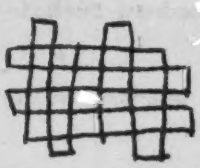
Other materials such as willow branches and straw need to be soaked in order to be flexible and workable.

Start with easiest types of weaving first. Work up to more complicated forms, using looms etc. as skills improve.

Along with the use of colored warp threads, tempera colors can be used to highlight projects.

Some forms of weaving:

I. Free Weaving! (Weaving without the use of a loom.)

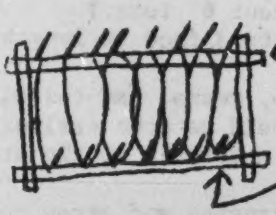


Simple over and under weave - good using iris leavee, cat-tail leaves, etc.

Wooden base

Weave in and out - Willow branches work well on this.

II. A Simple Loom

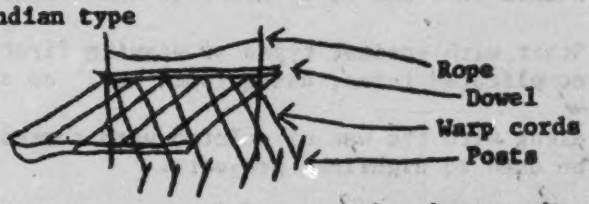


Lash

Nails

Weave in and out of warp. Use frame.

III. Another Simple Loom - Indian type



Rope

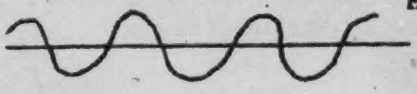
Dowel

Warp cords

Posts

Moveable warp

Move warp up and down, inserting material over and under stationary warp cords. Stationary Moveable.



LANGUAGE ARTS

Topic: CINQUAIN

Description: A five line poem of only eleven words, utilizing phrases, clauses or single words

Form:

First line -	State the subject (one word)
Second line-	Describe the subject (two words)
Third line -	Action of the subject (three words preferably) Expressed in either the past or present
Fourth line-	Action continues (four words)
Fifth line -	Author's feelings about the subject in one descriptive word.

Sample:

Willow
Feathery branches
Drooping, swaying, dancing
Playing in the breeze
Relaxed

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HAIKU

If you have ever observed anything with a sense of wonder....if you have ever reacted to anything with feeling.... and if you know how to count.... you can write haiku.

The haiku is a form of verse invented in Japan centuries ago. It contains three nonrhyming lines. The three lines can have only 17 syllables - 5 in the first line, 7 in the second, and 5 in the third.

The magic of good haiku lies in the power of suggestion. The impact is like that of a pebble tossed into a pool. The poem portrays a moment of vivid perception. As you read the poem, it ripples across your imagination, expanding and developing as you sense and share the experience of the poet.

When writing haiku, you should try to make full use of this power of suggestion. Look for meaningful and vivid details that portray your subject. The words you choose will suggest how you feel about the subject.

Read the following haiku, mostly written by students; then try your hand....

What a pretty kite
The beggar's children are flying
High above their hut.

The cemetery
Wind hurls the spirits about;
All dead, dry leaves.

The wintry wind blows
Like an icy finger raised
To give a command.

Fish lie lazily
In their still home waters
Basking in shadow.

Fast ball from the mound
Connects and blots out the sun
Leaving darkness here.

SKITS - INFORMAL DRAMATICS

Skits can either be the greatest thing since "sliced bread" or the worst thing ever. Too often, skits are much like the old saying "Stop me if you've heard this" and you have - at least 200 times before. Good, creative skits add much to the spirit of a resident outdoor group.

TIMES and PLACES TO USE SKITS:

- During Meals
- Campfires
- Skit Night
- Songfest
- Presentations Of Awards
- Flag raisings or lowerings
- Most group gatherings

SUBJECTS for SKITS

- Rules and regulations (done in a humorous way in a skit, they really get the point across)
- Ongoing experiences (Sad, happy, etc.)
- About the Staff
- About the Kids
- Formal skits (Books abound with examples)
- Parodies on TV, movies, etc.(A natural for Outdoor Education - Haah - My name is Euell Gibbons)
- If need be, some of the better of the standard skits. (Please be selective. Remember, even our environment is suffering from over-use.)
- Descriptive study assignments (Example: Using a Commentator and selected "actors" and "actresses", show how a carnivorous plant, i.e. Venus Fly Trap, catches insects)

Be creative - - Brainstorm - - Think about the great or funny or sad things that have happened recently - Get your ideas on paper - Make sure everyone knows their assignments - All props, etc. gotten before hand.

Practice -(Doesn't need to be perfect but some work needs to be done on timing, etc.)

ACTIVITY REPORT

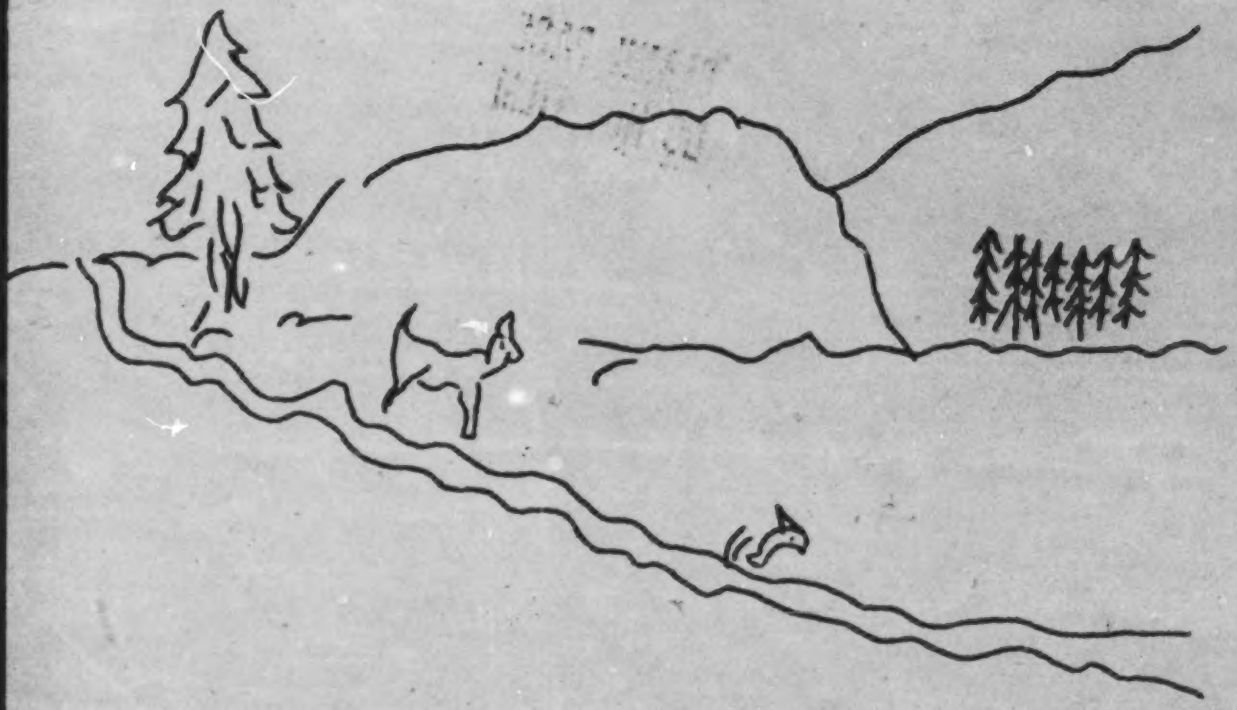
Activity _____ Time _____ Day _____

Group _____ Resource Person _____

Write a report noting activity, what was interesting, things learned, etc.

Name _____

NATURAL SCIENCE



HARMFUL and HELPFUL PLANTS

OBJECTIVES: To identify plants that are useful or dangerous to man.

VOCABULARY: Harmful - means dangerous to touch or if eaten
Beneficial - means can be used for food

METHOD: Field trip with instructor. Identify and draw sketch of plants, making notes on distinguishing characteristics.
(Optional: Prepare and eat plants in the field.)

- - - -

HARMFUL:

Poison Ivy

Poison Sumac

Queen Anne's Lace

Nettles (Stinging Nettle)

Fungi

BENEFICIAL:

Cat Tail

Dandelion

Milkweed

Acorns

Mountain Ash

Violets

Chicory

Golden Rod

Wild Rose

Day or Tiger Lilies

Wild Asparagus

Plantain

p. 47 blank

GRAVEL PIT

1. Clue students into glacial terrain as they approach pit.

2. At pit

   a. Define Moraine

   b. Discuss particle sizes you'd expect to find in pit.

   c. Examine face of pit - observe any layering or sorting if visible.

   d. Discuss how water velocity sorts particles by size: Fast water moves large particles whereas slowly moving water dumps fine particles. Look for examples of sorting in the face of the dune.

   e. Set up base line on a piece of graph paper. Have a student pace off 10 steps and place a pile of rocks every 10 steps. Decide on a scale on the graph paper; i.e. each square - 5 paces.... Have student pace from rock pile to edge of pit. Put a mark on graph paper so a profile of the edge of the pit can be mapped.

      3 of paces to edge

      rock line

      base line

      (Aerial view)

   f. Assign 5 kids to each 10 pace area and have them determine the size, kind, shape (round, smooth, angular) etc. of rocks and material in each area. On a separate sheet have them draw in the kinds of material found in each 10 pace segment. Put pictures together in a composite.

   g. Examine area for fossils as they hunt through debris for type, shape, etc. of material.

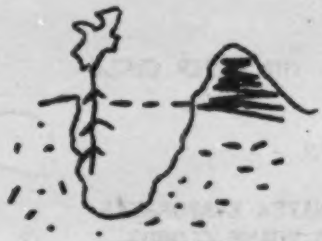
   h. Find area where sandstone formed and where granite has been weathered (broken down)

   i. Test soil pH on top and down in pit for pH and leaching (HCL - if fizzes, calcium present, If no fizz then calcium leached out.)

HOW TO PLANT A TREE

PLACING SEEDLINGS AT PROPER DEPTH

INCORRECT
The root is curled up. This prevents proper growth. Tree will die.



INCORRECT
The roots are exposed to air.

CORRECT !
Place it in the hole at the same depth it was growing.

PLANTING WITH A MATTOCK OR SHOVEL

1.

Plunge mattock straight into ground. Lift handle and pull.

2.

Place seedling along straight edge at correct depth.

3.

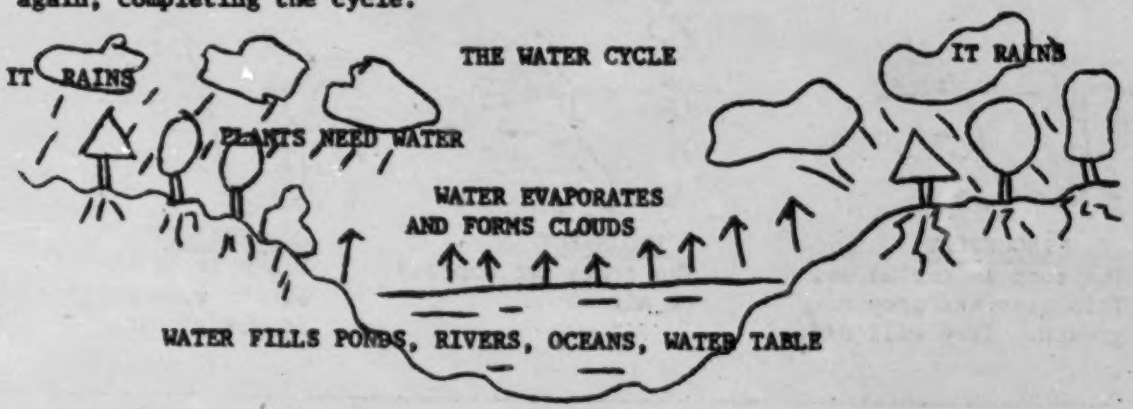
Pack soil around bottom of roots.

4.

Pack the freshly turned soil down with firm stamp of heel.

LET'S PLAY WEATHER MAN

This diagram shows what goes on in the atmosphere. Water evaporates into water vapor, gathers into a cloud, condenses, and falls as precipitation. This precipitation finds its way back to a body of water and evaporates again, completing the cycle.



Here is a game using words that all Weather Men must know. Beside each word in the first column write the Number of the word in the second column which tells what the word means.

Meteorology		1. is a way of expressing heat and cold.
Temperature		2. is air in motion.
Thermometer		3. is crystals of frozen water vapor.
Precipitation		4. are made up of drops of water or bits of ice.
Clouds		5. is an unusually long dry period.
Fog		6. is the change of water vapor to a liquid.
Snow		7. is the amount of water vapor in the air.
Wind		8. is a cloud near the ground.
Humidity		9. is any type of moisture that falls to the ground
Evaporation		10. is the study of the weather.
Condensation		11. is an instrument for measuring temperature.
Drought		12. is the change of water to a vapor.

CHART FOR WEATHER OBSERVATIONS

Purpose:

1. To describe and record the current weather.
2. To predict tomorrow's use the guide provided.

Date	Time	Barometer reading	↑ - ↓	Temp.	Humidity	Rain	Wind Direction	Speed	Sky	Forecast

Notes on use of this chart.

Try to take your readings at about the same time every day.
The arrow symbols in the barometer column refer to rising, steady, and falling air pressure.
Read the humidity to the nearest percentage point.
Wind speed can be determined by using the Beaufort Scale.
In the sky column, use these symbols; ○ clear, ◔ partly cloudy, ● cloudy.
The sky column can also be used to record the type of clouds seen each day. (Cumulus, Stratus, Cirrus, or combinations)

BEAUFORT SCALE

An English admiral named Beaufort devised a scale like this in 1805. An adaption of the Beaufort scale is used by the U.S. Weather Bureau.

BEAUFORT NUMBER	LAND DESCRIPTION	WIND SPEED MILES PER HOUR	U.S. WEATHER TERM
0	Smoke rises straight up.	Less than 1	calm
1	Smoke drifts. Wind vanes do not move.	1-2	
2	Wind felt on face. Wind vanes move. Leaves rustle.	3-8	light
3	Leaves and twigs move. Flags wave slightly.	9-14	gentle
4	Dust and bits of paper blow about. Small branches move.	15-20	moderate
5	Small trees sway. White waves on lakes and ponds.	21-25	
6	Large branches move. Umbrellas hard to use.	26-31	
7	Whole trees sway. Walking against wind is difficult.	32-37	strong
8	Twigs break off trees	38-43	
9	Larger branches break off trees.	44-49	
10	Small damage to buildings, loose slate and cement knocked off buildings.	50-54	gale
11	Trees uprooted.	55-60	
12	Considerable damage to buildings.	61-66	
13	Widespread damage.	67-71	whole gale
14	Rarely experienced. Reaching hurricane speeds.	72-77	hurricane approaching

FOREST CENSUS

A census is quite often used to count the number of persons or animals in an area. Instead of the number of animals in a designated area we will be concerned about a census of the kinds of animals common to the forest.

In order to identify the animals you may use one or more of the following techniques:

1. Sighting the actual animal - details or collecting must be part of the proof.
2. Tracks - Sketches should be made.
3. Nesting or living area identified.
4. Droppings - i.e., deer

Materials needed:

Sketch or note pad
Pencils (both colored and regular)
Small plastic bags
Plastic containers for small animal specimens
Golden Press guides

Here's some of the animals one might find in the forest community.

Frogs	Toads	Salamanders
Common Tree Frog	American Toad	Red-backed Salamander
Spring Peewee	Fowler's Toad	Jefferson Salamander
Wood Frog	Spadefoot Toad	Spotted Salamander

Snakes	Lizards	Turtles
Green Snake	Fence Lizard	Box Turtle
Hog-nosed Snake	Fived-lined Skink	Wood Turtle

Birds

Red shouldered Hawk	Downy Woodpecker	Tufted Titmouse
Wood Peewee	Crested Flycatcher	Yellow throated Vireo
Osprey	Chickadee	Hooded Warbler
Hairy Woodpecker	Wood Thrush	Ruffled Grouse

Mammals

Herbivores	Insectivores	Carnivores
White-tailed deer	Common mole	Raccoon
Chipmunk	Star-nosed mole	Bobcat
Deer Mouse	Common shrew	Opposum
Jumping Mouse	Short-tailed shrew	Striped Skunk
Red Squirrel	Brown Bat	Red Fox
Woodchuck		Weasel

TRACK CASTING

MATERIALS: plaster of Paris, Bowl to mix in, spoon or stick, cardboard, paper clip, tempura paint, paintbrush.

If you are curious, like to create things, and are a collector at heart, then track casting is for you. Actual tracks rarely have perfect detail. Easiest to cast are those in mud or clay; most difficult, in snow and dry sand. Best places to look are on trails along stream banks, and in woods after a rain.

PROCEDURE:

Step 1. After finding track, carefully brush away twigs, small stones, and excess dirt found in its immediate vicinity.

Step 2. Use cardboard strip 1 1/2" wide to surround track. Fasten strip with paper clip to form a dam. Push down lightly into dirt.

Step 3. Mix plaster of Paris to consistency of thick cream (put plaster into water, not water into plaster). Pour slowly over track.

Step 4. After plaster hardens, 30 minutes, liftout, peel cardboard away. You now have a track cast. If you want a track print, see Step 5; if not, see Step 9.

Step 5. Cover track cast with a layer of grease.

Step 6. Use a cardboard strip about 3" wide to surround the cast. Fasten strip with paper clip.

Step 7. Mix and pour plaster into the cardboard pool.

Step 8. After plaster hardens, peel cardboard away and lift track print away.

Step 9. For added attractiveness, paint around the cast or the print to show off the detail of the print.

ROTTING LOG STUDY (MICRO COMMUNITY)

I. What stage of decay is the rotting log in?
Underline one: A. Standing B. Newly fallen C. Rotten inside, hard outside

D. Completely rotten

II. Does the log look dead? Why?

III. Describe any "bugs" living in or on the log. Collect samples of each for later identification.

IV. Was the bark still attached?

V. Any evidence of small reptiles, mammals or birds living in the tree? Describe, and if possible, collect specimens.

VI. Are there any fungi living on the tree? Collect, if present, for identification.

VII. Compare another dead log of the same type at a different stage. Use the same steps (I - VI). Make some assumptions about the succession of decay in a log. (texture of wood, plant and animal life, etc.)

TRAIL TRICKS
(the well-timed question to expand the powers of observation)

ALONG MOST ANY TRAIL:

OBSERVATION	DISCUSSION
Soil erosion and profiles where freshly cut	What causes erosion? How do we control it? How is erosion controlled naturally?
Ground cover	Why is it different in different places? What's in it? How deep? What happens if it is disturbed?
Evidence of litterbugs	Effect on our woods, parks, etc. What can we do?
Trees with holes for wildlife	Any evidence of who's been using the hole? What value are these creatures?
Trees with wire through their trunks	How long has the wire been there? Why is the wire there? Why was the bark cut?
Trees damaged by fire	What type of fire? new or old? What has happened to the tree as a result?
Sink holes off the trail	How did it happen? What does it tell about the rock? Any trees in the sunken area? Which came first, sink or tree?
Levelness of ridge trails	What is a contour? How high are you?
Sun	Which direction are you walking? Does the closeness of the trees in the woods have a bearing on the kind of smaller plants? What difference does the angle of the sun make?
Woodpecker holes	How can you tell different birds made different holes? what can you tell about the kind of wood? Is it an old hole or a fresh one?
Water speed	Where are materials being moved? Any signs of high water level? Where was soil washed away? Where deposited? What size rocks were moved?
Fossils	What different fossils can you find? Many the same, or just a few? How does this date the area?

LAKE STUDY

Purpose: To do a biological, physical, and topographical study of a lake.

Materials: Secchi disk and line, depth finders, outline map of lake, plankton net, dip nets, thermometers, seine, sample bottles.

Procedures:

A. Use depth finders to find depths along assigned line and record on your outline map. Choose 3 different areas of the lake for sampling and label those areas on your map.

B. Determine and record the turbidity of the lake by using a secchi disk.

C. Take samples of plankton near water surface and at bottom. Collect in sample bottles and examine on shore. Record approximate depth where sample was taken.

D. Measure surface temperature. Can you measure bottom temperature?

E. Collect water samples. Examine latter to determine
   1. pH
   2. pollutants present

F. Note plant type and estimate percent of total population.

G. Map perimeter of lake, indicating shoreline vegetation (swampy, pine trees, etc.)

H. Sample the fish population using a seine.

I. Do you see evidence of eutrophication? If so, list the evidence.

LAKE STUDY LOCATIONS

	1	2	3
Turbidity			
Types of plankton top (estimate population)			
Surface temp.			
Pollutants			
Chlorides			
Sulfides			
Ammonia			
Phosphates			
pH			
Plant Life			
Evidence of Eutrophication			

SWAMP STUDY

Purpose: To have students experience through sensory awareness the uniqueness of a swamp. Also to have them do a survey of plant and animal life as directly related to the physical characteristics of the swamp. (i.e., water, soil)

Materials:
- Plastic collection bottles of various sizes
- pH kit
- Long handled strainers
- Magnifying glasses
- Copies of Golden Press"Pond Life".
- Aquarium tank
- Thermometers

Procedure:

1) Arriving at the swamp, give a short introduction on the uniqueness of a swamp, including talking about the variety of plant and animal life. (Generalities only - don't identify.)

2) Using sensory awareness techniques -
   Have students scoop the mud from swamp bottom - how does it feel? Have them smell it. Note comments and ask why it has that "rotten egg" odor.

   Have students remain quiet for several minutes and ask them about the sounds they heard. Especially effective in the spring with spring peepers, etc.

   Get visual impressions from students about abundance of growth, color, animals, etc. Relate it to the richness of soil, etc.

3) Collect examples of various "zones" of plants for further study:
   a) Submerged
   b) Floating-- both free and fixed
   c) Emergent

4) Using seines collect variety of insects, animals (such as tadpoles) and transfer to plastic jars. Remember to vent tops. Seine out bottom mud for possible specimens.

5) Test pH of swamp. Record and have students relate it to other findings.

6) Check temperature of bottom and top of swamp. Record.

7) Upon return transfer items to an aquarium for further observation and study.

SWAMP STUDY WORK OUTLINE

Using our Senses	1. Our eyes 2. Our nose 2. Our touch 3. Our ears
Plant zones present	Sketch the variety of plants
Animal Life present Insects Other Animals	Sketch the varieties
pH	
Temperature	
General Observations about the Swamp	

FREEING THE BIRDS

Dictate the letters in the chart so that each player can record them in similar positions in a diagram on his paper.

Directions are then given as follows: If you were a bird bander, you might find in your trap birds whose names are hidden here. You can find these names by starting with any letter and moving to any adjoining letter in any direction (up, down, across, or diagonally) to spell a bird's name. No box may be skipped, but a letter may be repeated as often as needed.

Answers: robin, towhee, peewee, whippoorwill, ovenbird, catbird, blackbird, oriole, lark coot, cardinal, owl, goose, crow, cuckoo, phoebe, loon, teal, cockatoo, willet, poorwill, hen, bell bird.

T	L	W	R	I	N
N	O	I	H	O	B
C	R	L	P	E	V
S	E	T	L	N	W
G	O	A	B	I	A
U	C	K	R	D	L

A TREE QUIZ

1.	What tree remains after a fire?	(Ash)
2.	What trees are part of your face?	(Tulips)
3.	What tree is well groomed?	(Spruce)
4.	What tree is used by fortune tellers?	(Palm)
5.	What tree has given a nickname to a famous American General?	(Hickory)
6.	What tree has the same name as an officer of a church?	(Elder)
7.	What tree wastes away in grief?	(Pine)
8.	What tree sounds like a personal pronoun?	(Yew)
9.	What trees stick together?	(Gum)
10.	What trees wear an animal's coat?	(Fir)
11.	What tree provides a place to swim?	(Beech)
12.	What tree has the loudest bark?	(Dogwood)
13.	What tree has a cat in it?	(Catalpa)
14.	What tree has an ear in it?	(Pear)
15.	What tree is best liked?	(Poplar)

A NUT QUIZ

1.	What nut is a nickname given to a President?	(Hickory)
2.	What nut is the color of an eye?	(Hazel)
3.	Where do we like to go on a hot day?	(Beech)
4.	What nut is a trunk or a box?	(Chestnut)
5.	What nut is a popular winter beverage?	(Coconut)
6.	What nut is a spring vegetable?	(Peanut)
7.	What nut is a South American country?	(Brazil)
8.	What nut is a penalty for wearing tight shoes?	(A-corn)
9.	What nut is a barrier?	(Walnut)
10.	What nut is made out of cream?	(Butternut)

CONSERVATION TREASURE HUNT

Instructions:

1. Do not climb trees, enter water, or take other risks.

2. Do not go beyond the boundary limits.

3. Return to the starting place at the sound of the horn or whistle.

4. Do not destroy trees, shrubs, flowers or active bird nests.

* *

1. Bring back a leaf from a plant which normally grows in water, and one which grows on high, well-drained land.

2. Wild birds and other animals eat many kinds of foods. Identify and bring back two foods used by birds and/or animals.

3. One small animal found in our state cannot run or gallop since it has but one foot. It is also interesting because it carries its home on its back. Find this animal.

4. One little animal common to our state is a friend of the farmer and fisherman. This legless creature feeds on earth, decaying material and leaves of plants. Find him.

5. A plant common to our state is considered a troublesome weed by some persons, especially when it is growing in a lawn. Bring back a golden flower-head or leaf of this particular plant.

6. Some wild plants provide food for man. Bring back the leaves of two wild plants producing food for man.

7. Seeds of plants are adapted from being spread by various means. Bring back a seed which is carried by the wind and one which is spread by animals.

8. Galls are bumps on leaves and are homes of certain insect larvae. Each gall-making insect makes its own type of gall on certain species of plants. Can you find a gall?

9. Bring back an animal other than those mentioned in 3 or 4 above.

10. Mushrooms and other fungi do not contain green coloring matter, (Chlorophyll), and thus they cannot make their own food. Bring back a plant having no chlorophyll.

11. Bring back some moss.

12. Ferns usually grow in shade created by woods. Bring back a frond (leaf) from a poplar tree.

NATURE SCAVENGER HUNT

Find and bring back objects in nature the names of which begin with each letter of the alphabet.

A.

B.

C.

D.

E.

F.

G.

H.

I.

J.

K.

L.

M.

N.

O.

P.

Q.

R.

S.

T.

U.

V.

W.

X.

Y.

Z.

NATURE SCAVENGER HUNT

1. One wild flower. Color _____ Number of Petals _____
2. One pine cone. Number of prongs _____
3. One piece of grass over 15" long. Describe the location where you found it. _____
4. A group of pine needles with two needles in a group. What is the species of this tree? _____
5. One piece of litter. Who do you think dropped it and why? _____

   _____
6. One cup of lake water. List three possible pollutants that might be present. _____ _____ _____
7. A piece of rusty metal. What caused the rust? _____
8. A staghorn sumac leaf.
9. An oak leaf. Describe the soil the oak is living in. _____

   _____
10. One edible plant. How would you fix it to eat? _____

    _____
11. One insect. (3 pairs of legs, 3 body parts) Common name _____
12. The beginning of a food chain.
13. A living or once living object, yellow in color.
14. One dandelion root. Describe the root. _____

    _____
15. A stone with red in it.

MAMMAL GAME

There are the names of twenty mammals hidden in the word box. Start with any letter and try to spell out the full name of a mammal. You can move in any direction - up, down, crosswise or diagionally, but without skipping a square. However, you may repeat the same letter more than once, if necessary.

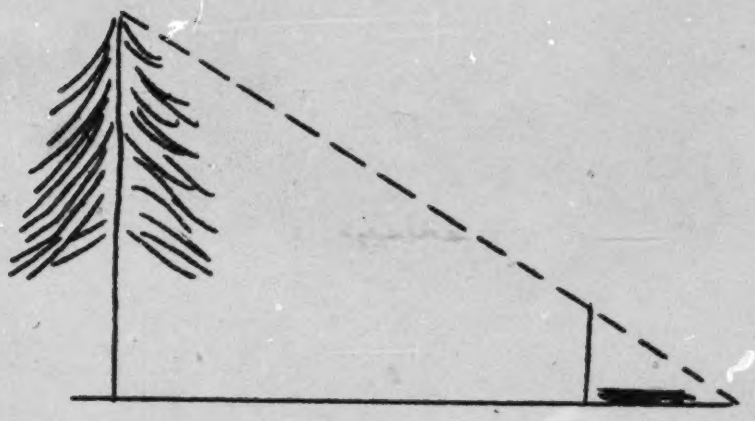
Answers: Lynx, fox, mouse, moose, elk, whale, shrew, rat bat, cat, beaver, deer, sheep, rabbit, badger, dog, hare, goat, seal.

Q	N	M	O	K	J
Y	X	U	S	E	L
R	L	O	W	H	A
E	F	D	E	R	E
O	G	V	A	B	P
D	A	T	I	C	Y

SCRAMBLED TREES

1.	ACKBL EYRECH	Air-slits many in my bark And drooping fruit-clusters are my mark.
2.	DRE LEPAM	Summer, fall, winter and spring, A touch of red I always bring.
3.	KIRCHYO	If you know me not, I'll give you a clue; Delicious nuts, and compound leaves, too.
4.	LLOWIW	Where the spring is seeping You'll find me weeping.
5.	MLE	Like a vase in summer breeze; I am often taken by disease.
6.	LKI RXOBE	Many winged seeds have I You'll see them as you go by.
7.	AFSSASSRA	My leaves have three shapes and one's like a mitten, I smell and taste so good when bitten.
8.	NOODWOTTOC	I have a flat leaf stalk that shakes in the breeze, And sometimes in spring, I'll make you sneeze.
9.	IWTHE KOA	Food for squirrels I bring in the fall, But people don't like my flavor at all.
10.	EDR AOK	Just like my cousin in number nine, But pointed, not rounded, leaves are mine.

OUTDOOR MATH



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DROP-OFF HIKE

Purpose: Using map, compass and wits, return to camp from an unknown point 2 to 5 miles away.

Method: Hikers will be blindfolded, bussed to some drop-off point, unblindfolded (?), given a map and compass for every two or three hikers with the object to return to the camp ground within two hours.

When you first get off the bus, orient yourself with respect to the map.

Determine north using the compass
Note features near you, try to find similar features on the map (cemetery? railroad track? highway? school?)

RETURN TO CAMP BY ROADS ONLY!!!! This is for two reasons:

a) if you get lost you're easier to find

b) certain local property owners will prosecute or injure trespassers

Discuss your route back among yourselves rationally. Don't waste time, energy and friendships by arguing.

STAY TOGETHER!! If disagreements arise as to route, opposing views should be presented, a vote taken, majority rules. Everybody goes the route selected. This may be the only election taken which will probably not be a 'personality' contest.

The adult in attendance will offer no advice or assistance except in emergency situations.

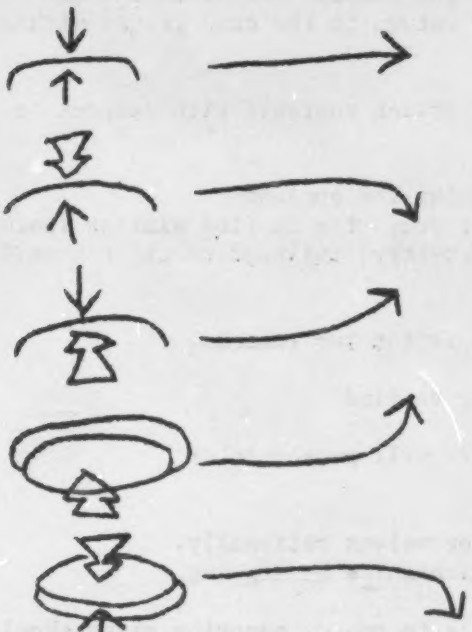
GOOD LUCK!!!!

p. 71 blank

FRISBEE

This activity is designed to enable the student to observe and investigate some of the properties of aerodynamics involved in Frisbee flight. Flight depends on balanced and unbalanced air forces.

These are the situations that can result:



Forces balanced, Frisbee flies straight

Forces unbalanced, Frisbee drops

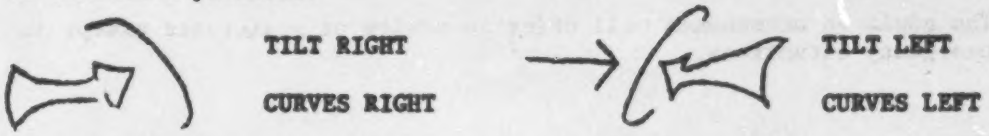
Forces unbalanced, Frisbee rises

Forces unbalances, Frisbee flies left

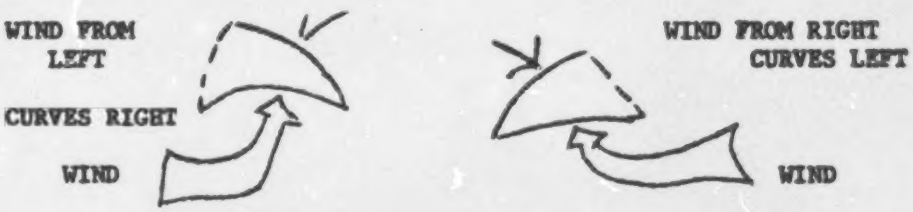
Forces unbalanced, Frisbee flies right

The forces may become unbalanced in two ways:

1. Tilting the Frisbee in the direction you want it to fly will result in increased pressure.



2. Wind forces cause increased air pressure which results in the Frisbee moving in the direction of the wind.



Requirements for Frisbee classifications:

FIRST DEGREE BROWN HAT

initials of instructor

1. From a distance of 30 feet, throw a Frisbee to a stationary partner so it:
   a. curves right
   b. curves left
   c. curves up
   d. curves down

SECOND DEGREE BROWN HAT

1. From a distance of 60 feet throw a Frisbee to a stationary partner so it:
   a. Curves right
   b. curves left
   c. curves up
   d. curves down
2. From a distance of 30 feet:
   a. catch a Frisbee with one hand.
   b. catch a Frisbee with one finger.

FIRST DEGREE BLACK HAT

1. From a distance of 30 feet make the Fristee land in a circle 3 feet in diameter after it:
   a. curves right
   b. curves left
   c. curves up
   d. curves down
2. From a distance of 20 feet, with your back towards a thrower, catch the Frisbee in one hand.
3. Skip the Frisbee and have it fly at least 15 feet.

SECOND DEGREE BLACK HAT

1. From a distance of 60 feet have the Frisbee land in a circle 3 feet in diameter after it:
   a. curves left
   b. curves right
   c. curves up
   d. curves down
2. Skip the Frisbee and have it fly for a distance of 20 feet and land in a 3 foot circle.
3. Fly the Frisbee at least 30 feet so it comes back and catch it with one hand.

OUTDOOR MATHEMATICS I

MEASURING DISTANCE BY YOUR PACE

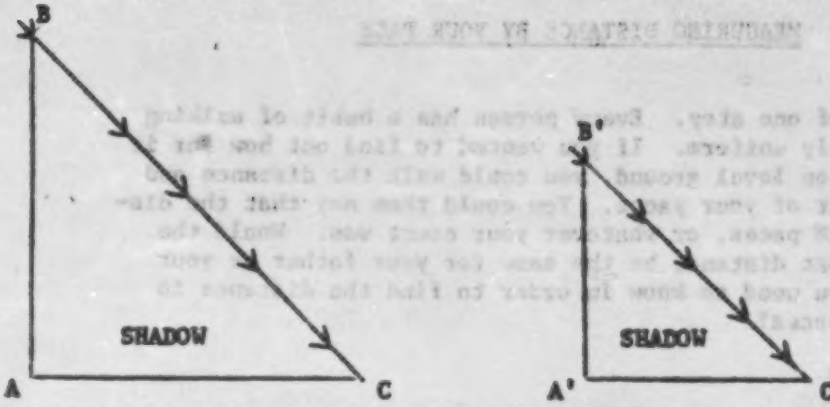
A pace is the length of one step. Every person has a habit of walking so that steps are fairly uniform. If you wanted to find out how far it is between two points on level ground, you could walk the distance and simply count the number of your paces. You could then say that the distance is 31 paces or 18 paces, or whatever your count was. Would the number of paces for that distance be the same for your father or your sister? What would you need to know in order to find the distance in feet instead of your paces?

How long is your pace?

Use a tape to mark off a distance of 100 feet on reasonably level ground. Count how many steps you take to walk the 100 foot distance. Repeat the pacing at least twice until you are satisfied with your result. Now figure out the length of one pace, rounding off your result to the nearest tenth of a foot. For example, your pace might be 2.8 feet. Have a friend figure out his pace and compare your data. Suppose your pace is shorter than his and both of you pace the same distance. Will you take more or less paces than your friend?

Step off the distance between 2 points on the Atheletic Field. How many paces? How many feet?

HEIGHTS BY SHADOW MEASUREMENT



At two locations close together on the Earth, the sun's rays are practically parallel. Because of this parallelism, shadow lengths can be used to find heights of vertical objects. In the figure above, ABC is similar to A'B'C', so

$$\frac{AB}{A'B'} = \frac{AC}{A'C'} \quad \text{and} \quad \frac{AB}{AC} = \frac{A'B'}{A'C'}$$

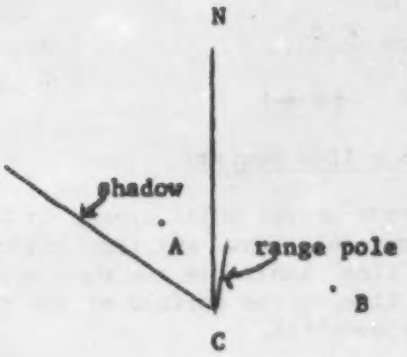
Thus, if A'B' = 6' and A'C' = 8', $\frac{AB}{AC} = \frac{6}{8} = \frac{3}{4}$ and at that instant any vertical distance is 3/4 the length of its shadow. For a rough approximation, you could use your own height and have someone measure your shadow length. For better accuracy, use a yardstick or range pole.

Is there ever a time when your shadow is just as long as your height? If so, what would be the length of the shadow of a yardstick at that same time? Set up a yardstick or range pole alongside the shadow so you can compare the length of the pole with its shadow. Is the shadow longer or shorter than the pole? Draw a picture to scale showing the situation when the height of an object is just as long as its shadow. How could you use this information to measure the height of a flagpole or building? Find the height of some building and draw a sketch.

USE OF SHADOWS

How can you establish a North-South line*?

One simple way to establish a North-South line is to observe the shadow of a vertical pole and mark the direction of the shadow at the instant when it is the shortest. At that time the sun is at its hightst point and, if you are in the Northern hemisphere, it is due South of you. A more accurate way is the "Indian Circle" method: During the morning set up a vertical range pole on level ground. Observe the direction and length of the shadow. Choose a radius a bit smaller than the length of the shadow and with a cord and a sharp stick, scribe a circle on the ground so that the bottom of the range pole is at the center (C). As the shadow changes during the day, mark the tip of the shadow frequently enough to obtain its path on the ground. In particular, mark the two points A and B when the tip of the shadow is on the circle. Bisect ACB to get a line CN. This is a North-South line. Describe the path of a snail which moved with the tip of the shadow during the time of the experiment.



*** A North-South line on the surface of the Earth is called a Meridian: it is also a Longitude line.**

MAP READING (topographic)

Purpose: To familiarize students with topographic maps with the emphasis on the contour line system.

General Outline: Topo (quadrant) maps are similar to other maps in that they show lakes, rivers, highways, etc. However, they differ in that they are extremely accurate and that they indicate the terrain by the use of contour lines.

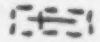
Color System Used in Topo Maps:

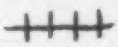
brown: contour lines
blue : water (rivers, lakes, marshes, intermittent streams)
green: vegetation
black: man-made items (buildings, dams, highways, etc.)
red : major highways

Legend: Symbols used on topo maps (abbreviated list)

school

church

graveyard 

railroad 

gravel pit

survey bench mark

marsh (blue)

Basic explanation of contour line system:

Contour "lines" are the brown curves which appear to wander all over a topo map. However, they are very accurately drawn and they indicate heights above sea level. The same contour "line" indicates the same height above sea level. If you could paint a contour line on the surface of the ground and then walk along it, you would not go up or downhill.

Contour intervals are usually 20 feet. That means that adjacent contour lines will have 20 vertical feet of height between them (referring to points on the earth's surface).

Every fifth contour line (every 100 feet) is wider and darker than the others and will be marked with the height above sea level.

The shape of the contour lines "draw" a picture of the terrain:

steep rises - closely spaced contour lines (c.l.)

gradual rises - evenly spaced contour lines (c.l.)

level ground - rather widely spaced c.l.

round hills - nearly circular c.l.

ridges - elongated (oval) c.l.
c.l. point DOWN ridge

stream valleys - c.l. form "V's" which point UPSTREAM

OUTDOOR MATH II

Topic: Measurement of vertical distances

Objectives:

1. To compare various methods of measuring heights and choose the most accurate.
2. To explain the principles behind each method of indirect measurement.
3. To apply the concept of ratio and similar triangles to measuring heights.

Concepts:

1. Similar triangles do not differ in shapes but only in size.
2. The ratio between two nos. is their quotient.
3. There are several indirect methods that can be used to measure height when it is difficult to make a direct measurement.

Vocabulary:

Indirect measuring methods

Inch-to-foot - a technique which relates the ratio of inches to feet in two similar triangles

Staff - a technique of establishing similar triangles with a staff or stick

Indirect measurement - a method of measuring in which the length of an object is determined by means other than applying a measuring device directly to the object.

First discuss ways or methods that anyone might think would work in measuring

Materials:

Yardstick, sticks of various lengths, shallow pan and muddy water, pencil & 50 foot tape measure

Indian Method:

Used by some of American Indian Tribes

1. A person would stand with back to tree and pace off a few steps.
2. Bend forward until head touches ground and look backwards through legs.
3. If he sees only part of tree, continue onward.
4. When you can see top of the tree, distance from head to tree equals approximate heights.
5. Based on similar right triangles

Inch-to-foot Method:

1. Start from tree (A) walk 11 steps and mark that point X with a long perpendicular stick
2. Walk one more pace and mark point (B)
3. Sight from point (B) at or across the stick to the top of the tree (C)
4. Mark point on stick where line of vision intersects stick (Y)
5. Measure distance from point (X) to point (Y) in inches.
6. Triangles CAB and YXB are established
7. Compare XB/AB = XY/AC or 1/2 = XY.AC

Staff Method:

1. Push staff into ground.
2. Lie down at point where sighting with eye close to ground, tops of staff and tree come together.
3. Divide distance from your eye to the tree by the distance from your eye to the staff.
4. This figure multiplied by the height of the staff gives the height of the tree. AC/AB = h/H

Tree Felling Method:

1. Hold stick vertically in your hand, arm outstretched.
2. Sight to tree you want to measure: tip of your stick should be even with top of tree and your thumb should mark the bottom.
3. Move the stick 90 degrees to the left or right making sure foot of tree and thumb mark still line up.
4. Note point where tip of stick hits the ground.
5. Step off the distance from this point to the foot of tree to obtain the height.

Pencil Method:

1. Have person of known height stand beside the tree.
2. Stand at distance from him and hold a pencil or short stick at arm's length and sight across top of thumb to his feet, point (Y).
3. Slide thumb to point on stick that marks feet (X).
4. Keep thumb in this position.
5. Raise pencil upward until you can sight across top of thumb to point (Y).
6. Sight across top of pencil to a new point on tree.
7. Repeat until reached top of the tree by sighting.
8. Keep track of standard measures XY.
9. Height of tree is this number times height of person.

S U R V E Y I N G

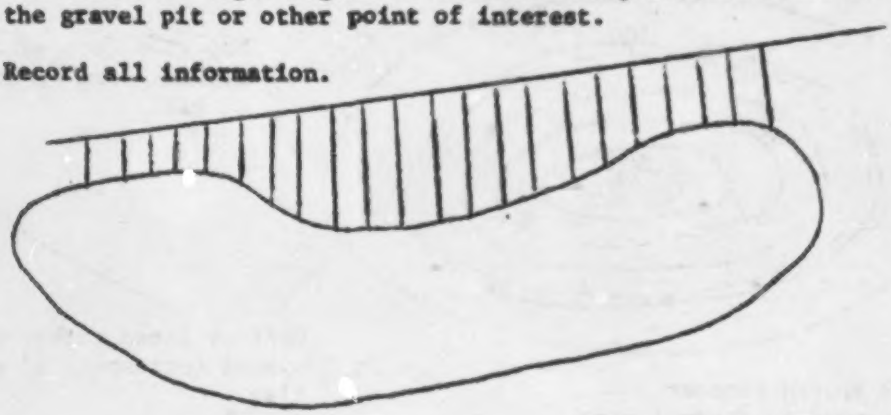
PICK A PERSON WITH A REGULAR PACE WHO CAN WALK IN A STRAIGHT LINE; MEASURE HIS PACE.

MAKE ALL MEASUREMENTS IN THE METRIC SYSTEM.

** BE SURE ADJACENT SURVEY TEAMS TIE THEIR WORK TOGETHER BY LOCATING TWO COMMON POINTS.

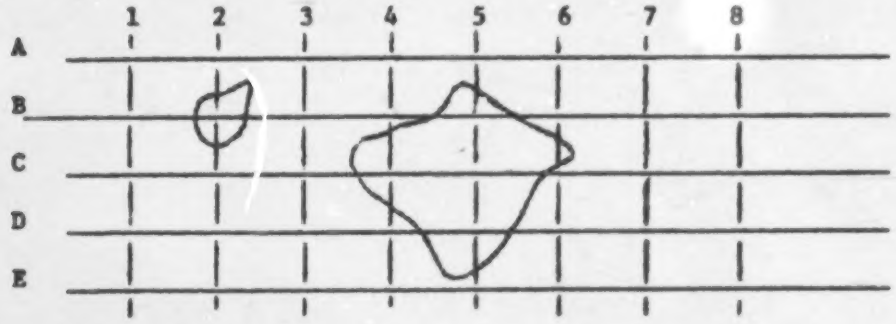
Baseline

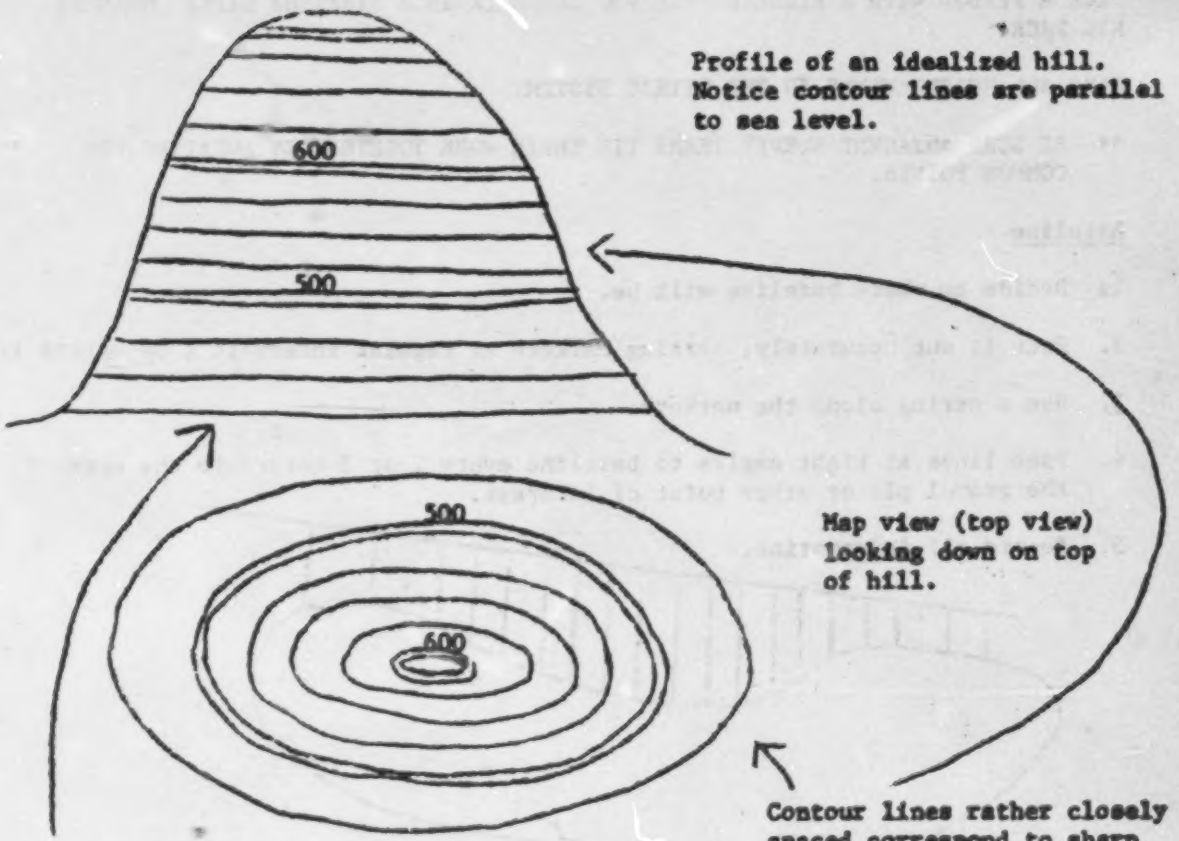
1. Decide on where baseline will be.
2. Pace it out accurately, setting markers at regular intervals (20 meters).
3. Run a string along the markers.
4. Pace lines at right angles to baseline every 2 or 3 meters to the edge of the gravel pit or other point of interest.
5. Record all information.



Grid Survey

1. Set up markers on the ground at regular intervals to form a grid. Distance between the markers depends on the area to be surveyed, perhaps every 2 or 3 meters.
2. Locate the feature to be surveyed. Determine which square it is in by sighting along lines (formed by your stakes) and then estimate which square the object is located.





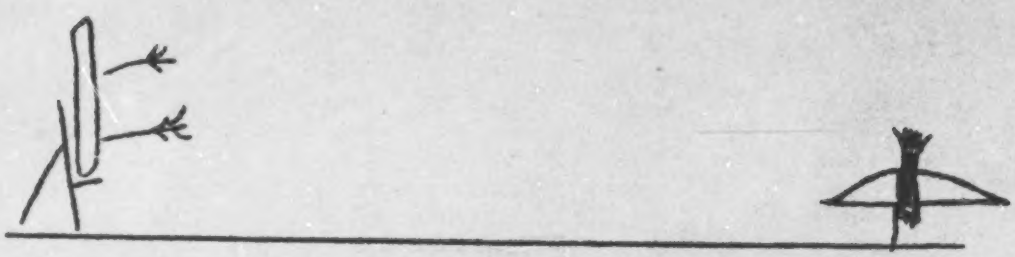
Profile of an idealized hill. Notice contour lines are parallel to sea level.

Map view (top view) looking down on top of hill.

Contour lines rather closely spaced correspond to sharp rise.

More widely spaced contour lines correspond to gradual rise.

PHYSICAL ED & RECREATION



ARCHERY

Perhaps the prime emphasis in the Archery Program should be on safety. Strict adherance to the rules must be observed.

The bow must not be drawn if:

- the rules have not been reviewed
- the counselor is not present
- all non-participants, except instructor, are not seated behind firing line.
- bow is pointed at other than the target
- an arrow is not in the proper position in the stance
- anyone is down range
- more than six arrows have been released and not collected

Archers must not proceed beyond firing line:

- until all bows on their station and their adjoining station(s) are lying on the ground

Arrows must be (as well as other equipment):

- handled carefully
- withdrawn from the target straight away in path on entry

Proper form in use of archery equipment must be observed. Basically this includes:

- Addressing the target - the tips of your toes should be in line with the center of the target.
- Stance - assume a comfortable position with your feet slightly spread. Place equal weight on both feet.
- Holding the arrow - place the arrow in the bow. Grasp the arrow with three fingers around the string. The arrow neck should be between the index and second fingers. Hold the string in the curve of the first joint of the fingers. The thumb and little fingers are turned into the palm of the hand.
- Draw - turn your head to the target. Extend your bow arm with the bow. Draw the arrow back to its full length, placing your hand along your jaw bone with the tip of your index finger at the corner of your mouth. Do not move your head. It remains in a natural "looking at target" position.
- Anchor - The position of the hand on the jaw bone with the tip of the index finger at the corner of the mouth is called "anchor".
- How to aim - when at full draw, with anchor in proper position, the aiming spot or bull's eye should be seen in the circle of the bow-sight and held there. Sight adjustment is made by moving the sight up if the arrow shoots high, move the sight down if the arrow shoots low.

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ARCHERY, cont'd

- Releasing - When the arrow has been aimed, it is released by simply relaxing and straightening the three fingers holding the arrow and string.
- The follow-through - archery, like golf and bowling, has its "follow-through". The bow arm stays extended and stationary until the arrow strikes the target. The release hand stays on the jaw bone, or moves slightly to the rear along the jaw bone.

Furthur refinements of archery technique can be found in the camp library.

Scoring:

- The bull's eye is scored five and progress outward - 4,3,2,1.
- In archery, an "end" is 5 arrows shot, perfect score is 25.
- One game is 4 "ends", 20 arrows, perfect score is 100.
- One series is 3 games, 12 "ends", 60 arrows, perfect score is 300.

CANOEING and BOATING

PURPOSE:

1. To gain skill and practice at canoeing and boating

   (a) To learn the parts of canoes and boats

      1. Bow
      2. Stern
      3. Oars and Paddles
      4. Gunwales
      5. Keel

   (b) To learn the different strokes

      1. Roving a boat (forward, backward, turning)
      2. Canoe strokes (bow, "J" stroke, sweepstroke, rudddering, pitch, draw, figure "8").

2. To teach boating/canoeing procedures

   (a) Proper way to enter a boat or canoe
   (b) Shoving off from shore
   (c) Sitting in a water craft
   (d) Proper way to beach
   (e) Changing position in boats/canoes
   (f) Proper way to put on a preserver

3. Safety Rules

   (a) Life preservers must be worn at all times
   (b) No one should stand in a boat or canoe while away from shore
   (c) Do not lean over the sides
   (d) No unnecessary splashing or horseplay is permitted
   (e) Craft must be kept under control and a safe distance from nearby boats
   (f) Limit - 4 in rowboat, 3 in canoe
   (g) If you capsize - stay with the boat or canoe
   (h) Stay in sight of supervisor(s)
   (i) Any action out of accordance with water safety is strictly forbidden
   (j) Boats and canoes must be properly returned to landing, oars and paddles put away, and preservers hung up

TIME: 1½ - 2 hours

METHOD: After a general presentation on boating and canoeing, each child demonstrates his ability to use the craft, and then proceeds with free boating and canoeing.

FISHING

A. RATIONALE: Fishing is one of man's oldest forms of outdoor recreation and is truly one of the most popular field sports in the world. Originally it served as one of the basic skills needed by our ancestors in their pursuit of food.

Children become interested in fishing at an early age. Those children in a rural environment are usually exposed to fishing as a part of growing up, with the acquiring of skills often learned from a parent or friend. Today, however, in our urban society, this opportunity is often neglected and as such, we need to provide children with the necessary skills in order that they might learn this form of lasting recreation and leisure activity.

B. GRADE LEVEL: Optional activity for 4th, 5th, and 6th grade students.

C. TEACHER INFORMATION: Fishing may be done ample shoreline, boat docks, and from boats (not canoes). It is suggested that rather than having the student bring equipment, that the activity include the making of a basic drop-line, emphasizing the important elements of the gear.

D. DESCRIPTION OF THE ACTIVITY:

1. Indoor Orientation
   a. Discussion fo the lake or stream to be used
      1. Depth
      2. Temperature
      3. Plane growth

   b. Discussion of fish
      1. Types - pan fish, bass, pickerel, perch, bullheads, etc.
      2. Abundance

   c. Discussion of the parts of a fish and their function

   d. Discussion of hooks

   e. Discussion of live and artificial baits

2. Bait Digging

3. Outdoor Orientation
   a. Preparing the drop line
      1. Attach line to reel
      2. Attach hook to line
      3. Attach sinker
      4. Attach bobber
      5. Place bait on hook

   b. Casting the line

   c. Safety factors

FISHING, cont'd.

4. Actual Fishing

5. Cleaning Fish Demonstration

6. Follow-up Discussion
   a. Other types of fishing
   b. Areas best for fishing
   c. Other kinds of equipment
   d. Rules, regulations, and seasons
   e. Cooking fish

PIONEER SKILLS - FIREBUILDING

I. Selecting a site:

A. May be already there and ready made i.e. State Park

B. Requirements for selection

1. Should be in clear, open space
2. NEVER build a fire under or against a tree or trees
3. Remove all dried leaves, grass, sticks or leaf mold from site
4. Clear site down to hard dirt, sand or rocks for at least an area of 6 square feet (10 feet)
5. Make a circle of rocks around the area where fire is to be built
6. Wet down area just inside rock circle

II. Gathering material for wood pile

A. It is important to line up material you need before starting a fire. Have enough of everything so that you do not have to leave your fire once it has been started.

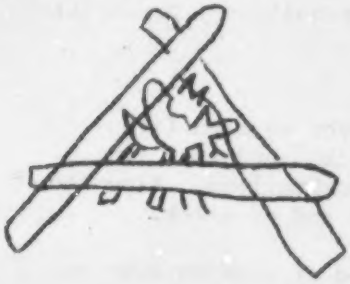
B. Three types of material needed for a fire are tinder, kindling, and fuel.
1. Tinder - any material which catches fire easily. It should be about as thick as match sticks, approximately as long as a new pencil.
2. Kindling - varies in size from thin branches, little bigger than timber to 1/2 and 1 inch thick. Kindling must be dry and should snap when broken.
3. Fuel - is the material that keeps the fire burning - (supplies most of the heat or light). It should firm wood graduated in size from pieces slightly bigger than kindling to good sized logs.

C. Woodpile -

1. As the wood is gathered and cut or broken, divide it into 3 piles; tinder, kindling, and fuel.
2. Place the woodpile 4 feet from the fire and on the side where sparks will not fall on it.
3. Making a woodyard - (If remaining in the same area for several days)
   a. Drive sticks into ground a foot apart and place fire materials neatly between them according to each size.

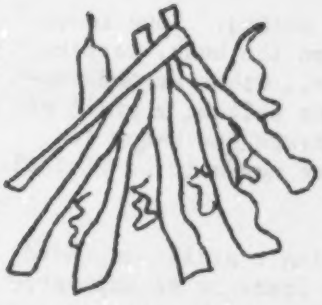
FIREBUILDING

A.



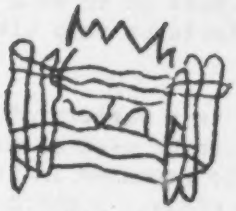
The basic (A) fire is easy to build. 1. Lay two good sized sticks of kindling in a V formation with the open end of the V facing the wind. 2. Lay a smaller stick across these to form an A. 3. Place a handful or two of tinder across on this crossbar. 4. Kneel and strike your match with your back to the wind. Tip it down so the flame catches the wood. If windy, cup your hands. When the match is burning well, light the tinder from underneath. 5. As your fire catches, add more tinder gradually. When it is burning briskly, place pieces of kindling in a teepee or wigwam formation, allowing for a draft.

B.



The wigwam or teepee fire - This is used when you want a fire that is quick, hot, and compact. It is the best for boiling, as the heat is concentrated. After the Basic A fire is burning well, add wood in a teepee shape.

C.



The Criss-Cross or Log Cabin Fire - This is used for campfire or broiling. It burns steadily, produces good coals, and does not need much feeding. Start with a Basic A fire and add wood in a criss-cross formation. Put thick sticks at bottom (fuel) and smaller ones actoss the top. In this way, the wood will burn down and fall, making a bed of coals.

PIONEER SKILLS - OUTDOOR COOKING

There are many ways that one can cook in the out-of-doors effectively. Resident outdoor education programs often provide this sort of experience for their students. It can combine a number of skills such as firebuilding, preparation of food, planning menus, and cooking of food.

Stick cooking: This is the easiest method of cooking over an open fire. Basic ingredients are a fire, green sticks, and food i.e., hotdogs, chunks of meat, vegetables, marshmallows. Also one can bake by wrapping bread dough around end of stick.

Alumimum Foil: This is probably the next easiest method of cooking over an open fire. All one needs is alumi[illegible]oil, food, and some sort of long tongs for removing fo[illegible]ckages from fire. typical foods used are hamburgers, hotdogs, small steaks, beef chunks, carrots, potatoes, etc.
Procedure - Put food in piece of aluminum foil. Season. Wrap up food carefully. Use lapover seam to seal food in. Drop into coals making sure that fire has burned down a bit. Turn packages occasionally and check until ready to eat.

Coal Cooking: Really the parent of the aluminum foil method. Some foods such as corn can be cooked by keeping on the husk, wetting thoroughly, and dropping into the coals. Other methods include packing in mud, i.e., potatoes, or setting a grill of some sort right in the coals. The backyard bar-b-que is really a variation of this method. Fire needs to be minimal with a good set of red-hot coals.

Grill Cooking: A very popular method of cooking is using a grill suspended over the fire. It might have it's own frame or be supported by rocks. Use just like the stove at home with pots, pans, and skillets. Remember, however, that you have limited control of the heat so foods need to be checked constantly (stirred, turned, etc.). Often work gloves save on burned fingers. One of my favorite utensils is a pair of pliers to move pots. A variation of using regular pots is to cook out of No. 10 cans (found in any school cafeteria or camp kitchen). Cook your stew, etc. and then discard.

Dutch Ovens: A dutch oven is a large iron pot (comes in a variety of sizes) found in most hardware stores and which can be used in many ways - as regular one-pot meals can be prepared in it. Baking breads can be done by using it in coals. A third method of preparation in a dutch oven is by digging a pit in the ground, layering the pit with hot rocks, coals, and ashes, sitting the dutch oven in the pit and covering it with rocks and coals. Baking can also be done this way as well as preparation of large pieces of meat, i.e., roasts. The whole secret of a dutch oven is the ability of cast iron to disperse heat equally throughout the utensil as well as holding the heat.

Reflector Oven; The most efficient reflector ovens seem to be the commercially made ones although simple ones made out of aluminum foil on a board can be used. Using a banked fire the oven relies on reflected heat to bake.

Breads, pies, cakes, fish, meat, as well as some of the more "exotic" dishes such as pizza can be done this way. The fire must be extremely hot, though, or you may find yourself with (as Mom well knows) a fallen cake. Be sure and turn as the food browns, but be careful. Easy to use and nothing tastes greater than a homemade blueberry pie cooked in a reflector oven.

Some suggestions are in order in outdoor cooking. They are:

- Adequately prepare. Outdoor cooked food can be great or awful, depending on the preparation. Remember such items as matches and salt.
- Assign students to specific duties. From preparation to cleanup.
- Students with long hair (Both girls and boys) should tie it out of the way. Fire can give someone a quick haircut and a nasty burn. A bucket of water near the cooking area for this purpose should be in order.
- Let the students do the work. You may be second only to Betty Crocker in cooking ability but the lesson is for the students not for your ego. Assist where needed.
- Make sure everybody is busy. Inactive students around a fire tend to bring about dangerous situations.
- Use proper procedures in putting the fire out and clean up the site. It's often greatly appreciated if you leave some firewood so the next group has something to start with.

FIRST AID

Purpose: To familiarize students with basic first aid treatment of injuries.

Definition of first aid: Emergency care given to an injured person that is immediate and temporary until adequate medical care can be given.

Note: The American National Red Cross has a number of publications which are good sources of emergency care: Standard First Aid and Personal Safety, Advanced First Aid and Personal Safety.

Approach to First Aid: Aid which effectively sustains life and temporarily prevents further injury or damage. With this in mind the question of which treatment should be done first is answered by the treatment that is first necessary to sustain life. (An example would be if a person had stopped breathing and also was bleeding severely.) Since severe injury is also normally accompanied by shock both should be treated simultaneously. (Many persons die from shock rather than from the injury itself.)

IMPORTANT POINTS TO REMEMBER:

1) Remain calm.
2) Check for breathing, bleeding and signs of shock.
3) Send someone for medical assistance.
4) Use proper first aid procedures.

Breathing:

1) History of artificial respiration leading up to why mouth-to-mouth is now the preferred method.
2) Probable causes of respiratory failure.
3) Demonstration and practice of mouth-to-mouth resuscitation.

Bleeding:

1) Types of bleeding - venous, arterial, capillary.
2) Treatment of bleeding
   a) Direct pressure
   b) Pressure points
   c) Tourniquet

Shock:

1) Definition of shock - caused by a depressed state of many bodily functions.
2) Causes of shock
3) Symptoms of shock
   a) Rapid pulse
   b) Skin is pale and cold, perhaps clammy and moist.
   c) Shallow breathing
   d) Dilated pupils
4) Treatment of shock
   a) Keep lying down.
   b) Keep warm.
   c) Elevate feet slightly.
   d) Get medical help.

Wounds:

1) Definition of wounds - open, closed, etc.
2) Types of wounds
   a) Abrased
   b) Incised
   c) Lacerated
   d) Puncture
   e) Avulsed
3) Treatment of wounds
   a) Stop bleeding
   b) Clean with soap and water
   c) Dress wound with dry sterile dressing
   d) Get medical help

Burns:

1) Definition and causes of burns
2) Types of burns
   a) First degree
   b) Second degree
   c) Third degree
3) Treatment of burns
   a) Apply cold (First and second degree only)
   b) Dry and cover with sterile bandage.
   c) Get medical help.

Sprains:

1) Definition of a sprain
2) Symptoms of sprain
   a) Swelling
   b) Discoloration
   c) Tenderness
3) Treatment of sprain
   a) Elevate
   b) Apply cold
   c) Seek medical help.

Breaks: (Fractures)

1) Definition of a break
2) Types of fractures
   a) Simple
   b) Compound
3) Symptoms of a fracture
   a) Patient often hears or feels a snap.
   b) May be a sharp pain
   c) May be a deformity or bone sticking through skin.
4) Treatment of break
   a) Immobilize
   b) If compound, treat bleeding carefully.
   c) Get medical help.

Eye Injury:

1) Symptoms of an eye injury
   a) Redness
   b) Burning sensation
   c) Possible pain
   d) Watering of eye
2) Treatment
   a) Cover with clean dressing
   b) Get medical assistance

Blisters:

1) Definition of a blister
2) Treatment of blister
   a) Cover - DO NOT OPEN.
   b) If extensive - get medical assistance

Poison Ivy, Oak, or Sumac Poisoning

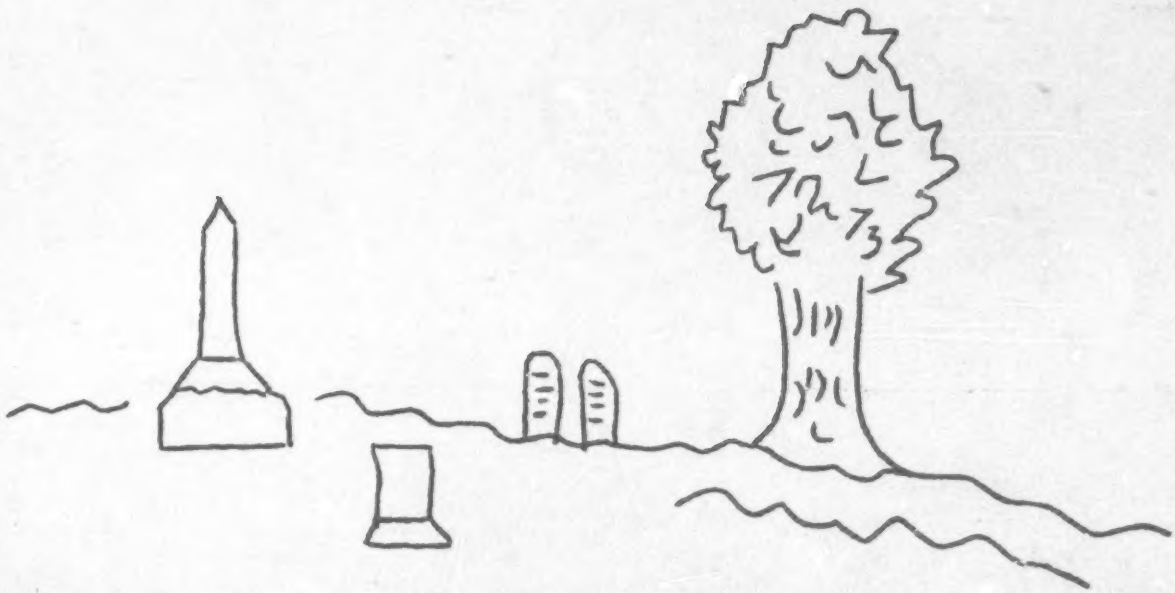
1) Identification of poison ivy, oak, and sumac.
2) Symptoms of poisoning (Begins several hours after contact.)
   a) Redness
   b) Itching
   c) Blistering/rash
3) Treatment of poisoning
   a) Clean area thoroughly with soap and water
   b) Treat rash with calamine, rhulicream, etc.
   c) Get medical advice

Heat Ailments:

1) Definition of problems related to heat
   a) Heat stroke - characterized by malfunction of sweating mechanism.
   b) Heat exhaustion - characterized by fatigue, weakness due to inadequate fluid intake.
2) Symptoms of problems
   a) Heat Stroke
      -High body temperature
      -Strong, rapid pulse
      -Skin is hot, red, and dry.
   b) Heat Exhaustion
      -Normal or slightly sub normal body temperature
      -Excessive perspiration
      -Tiredness, weak feeling
      -Headache
      -Nausea
   c) Heat Cramps
      -Knotting and spasms of muscles, often in abdomen and legs.
4) Treatment
   a) Heat Stroke
      -Reduce body temperature quickly; cold water, alcohol rub, etc.
      -Maintain body temperature once lowered with fans, air conditioners, etc.
      -Get medical assistance.
   b) Heat Exhaustion
      -Give sips of salt water (1 tsp. per glass) every fifteen minutes over about an hour's time.
      -Keep person lying down
      -Loosen clothes
      -Keep him cool
      -Get medical advice
   c) Heat Cramps
      -Massage cramped area
      -Same salt water treatment as for exhaustion

As with all outdoor education study plans, first aid is best learned in a practical field experience. Simulation exercises work especially well.

SOCIAL SCIENCE



AN HISTORICAL SURVEY

I. WHO WERE THE FIRST PERSONS KNOWN TO HAVE LIVED HERE?

II. OUTSTANDING PHYSICAL CHARACTERISTICS OF THE LAND?

III. WHO WERE THE FIRST SETTLERS? REASON FOR SETTLING?
APPROXIMATE DATE OF SETTLEMENT.

IV. LIST ANY EVENTS OF HISTORICAL SIGNIFICANCE.

V. TRACE CHANGES IN ECONOMY FROM FIRST SETTLERS TO PRESENT.

VI. PREPAPE A CHART OF POPULATION GROWTH FROM FIRST SETTLEMENT
TO NOW. (25 year blocks of time)

p. 99 blank

HOMESTEAD STUDY

COMPARISON OF CONSTRUCTION OF PRE-1875 HOUSES WITH HOUSES OF TODAY:

A. Supporting timbers - Axe-hewn or commercial cut?

B. Lumber - check flooring and frame for evidence of handmade rough cut.

C. Nails - Handmade or machine made?

D. Foundation - Stone or poured cement?

E. Shingles - (Hint of homemade. Tend to be cut from single log. Narrower at the top)

F. Supporting braces - trunneled or fitted - nailed or pegged?

G. Basement - check for protruding shelf supports.

H. Are there overlaps atop doors, windows? These act as rain diverters. What do they use now?

I. Doors - Home made or commercial. Also look at the handles.

J. Fireplaces - Evidence of cooking/heating type as opposed to purely ornamental. (Hint - Is there a large one in the kitchen area.)

K. Mortar - Held together by pig or horse hair? Quite common and very strong.

A CEMETERY STUDY

I. WHAT IS THE OLDEST DATE IN THE CEMETERY? THE NEWEST DATE?

II. LIST THE PREDOMINANT FAMILY NAMES. RELATIONSHIPS (wife, husband, child, etc.) DOES IT SEEM TO BE A PRIVATE OR PUBLIC CEMETERY?

III. NOTE THE AGES ON THE STONES. DID PEOPLE LIVE LONGER/SHORTER/ OR THE SAME AS THEY DO NOW?

IV. WHAT TYPE OF MATERIAL ARE THE TOMBSTONES MADE OF? IS IT NATIVE TO THIS AREA? IS THERE A DIFFERENCE IN MATERIAL BETWEEN OLD STONES AND NEWER STONES?

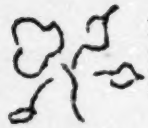
V. ANY INDICATION OF AN EPIDEMIC? NOTE DATES AND AGES. (ESPECIALLY AMONG SMALL CHILDREN)

VI. SOME COMMONLY USED DESIGNS
(Very typical pre-1850)

DID YOU SEE A SIMILAR DESIGN? DRAW IT.

Cineary urns-Very common. Often with willows. They denote the body returned to ashes and back to dust..

Willows-Christian tradition states that willows continue to grow and remain whole, no matter how many branches are cut away.



Floral designs. Seasonal regeneration, as in a life after death.

Angels or angel-like faces. Reference to the heavenly spirits.

Lamb figure. Often on top of the stone "A Lamb of God".

Gates of HEAVEN. Refers to Spirit having entered the Holy Gates.

Scroll. Reference to person's life being inscribed as a permanent record - to be read at time of entrance to Heaven.

Star of David. Usually signifies person of Jewish faith.

VII. DRAW FOUR DIFFERENT SHAPES OF STONES.

VIII. AN EPITAPH IS SIMILAR TO A POETRY VERSE. IS THERE ANY EVIDENCE OF THIS? WRITE DOWN SEVERAL.

IX. GRAVESTONE RUBBINGS: MATERIALS NEEDED - CHARCOAL
NEWSPRINT
MASKING TAPE

TAPE PAPER TO TOMBSTONE, GENTLY BUT FIRMLY. RUB AGAINST THE PAPER WITH CHARCOAL TO OBTAIN THE PATTERN ON THE STONE. ESPECIALLY GOOD FOR OLD INSCRIPTIONS AND EPITAPHS THAT ARE HARD TO READ.

X. MANY TIMES, IN ADDITION TO THE HEADSTONE, THERE IS ALSO A FOOTSTONE. MEASURE, WITH A YARDSTICK, THE DISTANCE BETWEEN SEVERAL HEADSTONES AND FOOTSTONES. DOES IT SEEM THAT PEOPLE WERE SHORTER OR TALLER YEARS AGO? (AVERAGE CASKET TODAY IS 83" LONG. AVERAGE MAN IS 5'10" AND FEMALE IS 5'6").

HORSE AND MAN

OBJECTIVES: 1. To trace the natural history of horses and their relationship to man throughout the ages.

2. To teach the basic skills of riding.

PRECAUTIONS: This activity should always be placed in charge of a specialist.

EQUIPMENT: Although there are many types of saddles and styles of riding, a Western type saddle will be used for the program. This type of saddle offers a certain degree of security, i.e., feeling of support, that other saddles lack, and is excellent for beginning riders. The horn, contrary to popular belief, was not put there to secure the beginning rider to the saddle seat. It was designed to "dally" a catch rope.

LESSON PLAN:

1. History of horses and its relationship to man in work, exploration, and recreation.

2. Demonstration of a horse: Basic elements involved - Front of a horse (the end that bites) and the back of a horse (the end that kicks) and the other parts of the horse. Other essentials such as letting a horse know that you are around him by talking to him, etc.

3. Basics of riding

   a. Stirrup length should be such that when you stand up in the stirrups, you clear the seat by about 3 inches.

   b. Mount from the left side of the horse.

   c. Ball of foot should touch stirrup tread.

   d. Toes turned out, heels turned down.

   e. Only one hand on the reins, preferably the left hand.

   f. Tell the horse what to do with the reins: move forward, stop, turn. The body also acts to give the horse signals.

   g. A Western saddle horse has three natural gaits: walk, trot, and gallop. (Like 3 gears - 1st, 2nd, and high.)

   h. You sit in the saddle at all 3 speeds but flex during the trot, which means feel the trot and move with the bounce.

   i. Sit on your thighs, not your hindquarters.

   j. Stay awake in the saddle. Most accidents happen when the rider""sleeps" in the saddle rather than keeping his mind on riding.

4. Riding Activities: Ring riding to check out skills and then trail riding once skills adequately performed.

ARCHEOLOGICAL DIG

Purpose: L) Aquaint students with an approach to studying past history through artifacts.
2) Teach specific methods in archeological excavation.

Classroom preparation:
1) Review map assignment and interpretation.
2) Class presentation on methods of archeology and individual duties.

Job assignments for each team (10 - 12 students):
1) Gridders/mappers - Assigned to plotting "find" on grid.
2) Recorders - Record time of "find" as well as place, size, consistency, type area, etc.
3) Photographers - Take picture of "find" before removal.
4) Sketchers - Sketch of "find" before removal.
5) Diggers/sifters - Assigned to dig in grid area and sift all material through screen.

Materials needed:

-Cameras
-Shovels
-Clipboards
-Pre-drawn grid sheets
-Small notebooks
-Tape measures
-Compasses
-Plumbline
-Hammers
-Level
-Screens or sieves
-Wheelbarrow
-Trowels
-Movie camera
-Pegs
-String
-Pre-drawn maps
-Brushes
-Knives
-Hand picks
-Portable tape recorder

Procedures:
1) Area to be studied is mapped.
2) Teams lay out grids (string and pegs).
3) Diggers/sifters begin working in grids.
4) As artifacts are found they are recorded, photographed, drawn on grid sheet, and sketched. All this is done before removal.
5) Care should be taken in removal. Artifacts to be stored in safe area.
6) Note: Because excavation destroys primary evidence, it is essential to keep good records. Therefore, each team is responsible for accurate recording and interpretation of data. All artifacts recovered are considered property of site owner unless permission is given to contrary.

Followup: Written interpretation should be discussed. Since archeology is the primary tool of prehistoric investigation the student work experience can form a basis of introduction to other units of study such as: Origin of Humaness.

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